

MARYLAND  
DEPARTMENT OF  
TRANSPORTATION  
(MDOT)

**RAIL SAFETY OVERSIGHT**

**PROGRAM STANDARD**

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Maryland Department of Transportation  
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# **1 Overview and Authority**

## **1.1 Purpose**

This document describes the state of Maryland's program for addressing regulations promulgated by the Federal Transit Administration (FTA). These regulations establish minimum requirements for safety and security programs at the one Rail Transit Agency (RTA) currently within the state's jurisdiction, the Maryland Transit Administration (MTA). The purpose of this document is to provide standards, procedures, and technical direction to MTA in order to implement the program specified by the state.

## **1.2 Authority Under 49 C.F.R. Part 659**

The State of Maryland has assigned the Maryland Department of Transportation (MDOT) as the Rail Safety Oversight Agency, the agency responsible for rail transit safety and security oversight in the state. This document establishes the system safety and security requirements for the MTA to implement the provisions of the Rail Safety Oversight Program.

FTA's authority to require this program derives from its authority to condition the receipt of FTA grant funds on compliance with FTA guidance (49 U.S.C. § 4324(c)). The Intermodal Surface Transportation Efficiency Act (ISTEA), reauthorized by the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFTEA-LU), directed FTA to issue regulations requiring states to oversee the safety and security of rail transit agencies (49 USC § 5330). FTA promulgated its regulations through the adoption of a rule in 1995, entitled "Rail Fixed Guideway Systems; State Safety Oversight" (49 CFR Part 659). FTA recently revised 49 CFR Part 659, publishing its new final rule on April 29, 2005, hereinafter referred to as "the rule" or Part 659.

The RSOPS documents both MTA and MDOT required activities to implement Part 659. It also specifies the program in place to ensure ongoing communication between MDOT and MTA regarding safety and security information, and to address MDOT communication with the FTA, including initial, annual, and periodic submissions.

### **1.2.1 Authority Under 49 U.S.C. 5329(e)**

The Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21) creates a new regulatory role for the States implementing State Safety Oversight Programs (SSOPs) for the rail fixed guideway public transportation systems (RFGPTS) in their jurisdictions.

Congress designed MAP-21's new public transportation safety program to respond to gaps in oversight and safety performance identified through National Transportation Safety Board (NTSB) investigations, U.S. Government Accountability Office (GAO) audits, USDOT Office of the Inspector General (OIG) assessments, and FTA's State Safety Oversight (SSO) program audits and safety studies. Prior to MAP-21, many State Safety Oversight Agencies (SSOAs) lacked sufficient enforcement authority to compel specific action from the rail transit agencies to resolve identified safety deficiencies in a timely manner.

In 49 U.S.C. 5329(e)(3), Congress mandates that if FTA cannot certify a State's SSO program by no later than 3 years after the date on which a final rule implementing 49 U.S.C. Section 5329(e) becomes effective, then FTA is prohibited from providing even a single dollar of Federal grant

funding to that State or any public transportation agencies within the State. This prohibition is unprecedented in FTA's regulatory history. Therefore, FTA and the States are working diligently to develop MAP-21 compliant programs now to avoid circumstances that result in penalties for each State and its public transportation agencies.

Explicit mandates in 49 U.S.C. 5329(e)(3) and 5329(e)(4) now require a State to obtain enforcement authority for its SSO agency that administers SSO programs for the rail transit agencies in that State. States must provide their SSO agencies with this authority as a condition of the receipt of Federal grant funds apportioned under 49 U.S.C. chapter 53. In addition, each State must identify the specific authorities and capabilities that it will use to enforce 49 U.S.C. Section 5329(e) provisions in order to maintain its eligibility for Federal public transportation funding. FTA will evaluate each State's approach and determine its sufficiency.

FTA has determined that most States require additional enforcement authority to meet 49 U.S.C. 5329(e) provisions. As such, the State of Maryland is currently working to empower the SSO program to perform all necessary enforcement activities mandated and made possible under MAP-21 legislation once the applicable Final Rules are released. This Program Standard will be updated in accordance with the new rules as they become effective.

### **1.2.2 MAP-21**

In October 2012, the Moving Ahead for Progress in the 21<sup>st</sup> Century Act (hereafter "MAP-21"), which includes new provisions for State Safety Oversight agencies, including MDOT, became effective. MDOT has begun working to implement the provisions of MAP-21, which will strengthen the oversight program by ensuring the legal and financial independence of the oversight agency, providing specific authority to enforce program requirements and to compel action by the covered transit agencies, and to conduct audits, inspections, and field measurements, among other new requirements.

A critical change prescribed by MAP-21 will be a shift from the current structure of SSO programs, including the use of system safety program plans (SSPPs) and this Program Standard, to one based on safety management systems (SMS), which are currently in use throughout the aviation industry and other transportation modes. SMS is a comprehensive model for collecting and analyzing safety data, proactively addressing hazards at the lowest levels in a system, and working collaboratively with all levels of transit system employees to ensure a robust safety culture that emphasizes safety performance and examining root causes for preventing future hazards. In addition to these characteristics, an SMS plan is composed of four primary sections, each addressing a separate subject area, and twelve elements within these four sections. While some of these sections introduce new material and safety principles, many areas are reflected in the current RSOPS structure as well. Thus, many of the activities currently in place in MDOT's SSO program can be relatively easily adapted to SMS.

As of this version of the RSOPS, and until full implementation of the provisions of MAP-21, all of the requirements of Part 659 will remain fully effective and enforceable. Part 659 will remain effective until three years after the FTA promulgates the pending final rulemaking for MAP-21 to be found in 49 CFR Part 674. In advance of the final rulemaking, this version of the MDOT RSOPS includes interim enhancements to state safety oversight program implementation activities.

As part of the final rulemaking that will put MAP-21 into effect, SSOs will require their rail transit systems to implement SMS throughout their organizations. This process will not be immediate,

and will require significant changes on the part of MTA in terms of safety function activities as well as operational monitoring of safety performance and collaboration with the MTA Safety Department. As such, MDOT will maintain its SSO requirements for MTA under Part 659 during this transition period, including SSPP and SEPP implementation as well as all other elements of the current program. These requirements are described in Section 2 of this RSOPS.

### 1.3 MDOT State Safety Oversight Program

The MDOT Assistant Secretary of Transportation, Office of Administration has been designated by the MDOT Secretary to appoint the MDOT Program Director and ensure that the Rail Safety Oversight Program is implemented. The MDOT State Safety Oversight Program is directed by the Program Director, MDOT Office of Homeland Security, Emergency Management and Rail Safety.

<b>Oversight Agency:</b>	Maryland Department of Transportation (MDOT)
<b>Oversight Program Manager:</b>	Mr. Martin Shutt Program Manager, Rail Safety Oversight Maryland Department of Transportation 7201 Corporate Center Drive Post Office Box 548 Hanover, Maryland 21076 Phone: 410-865-1310 Fax: 410-865-1113 Cell: 443-224-5060 MShutt1@mdot.state.md.us

MDOT is authorized to arrange a meeting with the MTA Administrator in the event that agency-wide attention should be focused on a specific MTA safety or security issue. MDOT retains the authority to use contractors as required to support the performance of safety and security oversight activities.

#### 1.3.1 Roles and Responsibilities

The Secretary or his or her designee is responsible for:

- Appointing an MDOT Program Director, [659.9]
- Ensuring that the Rail Safety Oversight Program (RSOP) is implemented,
- Informing all levels of direct report management of their responsibilities within the program, and providing suitable authority to carry-out these responsibilities,
- Providing necessary resources to meet the requirements of the Oversight Program.

The Administrator of the Maryland Transit Administration is responsible for:

- Complying with the mandate of the RSOP Standard and ensuring compliance within the MTA, [659.27 (g) Chief Executive Compliance Certification]
- Establishing and maintaining an SSPP which complies with 49 CFR 659 and this Standard, [659.17]

- New construction work, or modifications to the system, officially informing MDOT in a timely manner on all witness, inspections, sampling inspections, and certification points, and provide such access as is necessary to meet this requirement, [659.19 (h)]
- Establishing and maintaining an SEPP which complies with 49CFR 659 and this Standard, [659.21]
- Ensuring that an Annual Review of the SSPP/SEPP is conducted, and submitting any change to MDOT for approval, [659.25]
- Ensuring that a suitable Internal Safety and Security Audit Process is developed and implemented, [659.27]
- Ensuring that MDOT is notified no later than December 31<sup>st</sup>, of the Annual Schedule of Internal Safety and Security Audits for the coming year, [659.27 (c)]
- Ensuring that checklists used for the Internal Safety and Security Audit Process are submitted to MDOT for approval, [659.27 (d), (e)]
- Submitting an Annual Report documenting Internal Safety and Security Audit activities and the status of findings and corrections actions, [659.27 (f)]
- Along with the Internal Safety and Security Audit Annual Report, submitting a formal Letter of Certification indicating that the MTA is in compliance with its SSPP and SEPP, [659.27 (g)]
- Ensuring that a Hazard Management Process approved by MDOT is developed and implemented and that MDOT is notified in the event of an Hazardous Condition, [659.31]
- Ensuring that MDOT is notified in the event of a Reportable Incident, [659.33]
- Ensuring that Incident Investigations are conducted using a procedure authorized by MDOT, [659.35 (c)]
- Complying with MDOT Corrective Actions Plan (CAP) Program, and ensuring that CAPs are submitted for approval by MDOT. [659.37]

The Director, Rail Safety Oversight Program is responsible for:

- Ensuring that the RSOP Standard is established, reviewed biennially and updated as necessary in an ongoing manner,
- Ensuring that Office resources are available to support the Program,
- Approving the RSOP Standard,
- Approving the MTA SSPP, and issuing of a formal Letter of Approval, [659.17 (c)]
- Approving the MTA SEPP, and issuing a formal Letter of Approval, [659.21 (c)]
- Submitting the MDOT Standard changes and Annual Report to the FTA, [659.15 (a)]
- Directing the MTA to develop and implement an SSPP that complies with this Standard and 49CFR 659, [659.17(a)]
- Directing the MTA to develop and implement an SEPP that complies with this Standard and 49CFR 659, [659.21(a)]
- Directing the MTA to conduct annual review of its SSPP and SEPP, [659.25 (a)]
- Directing the MTA to conduct an Internal Safety and Security Audit Program, [659.27 (a)]
- Directing the MTA to submit an Annual Report summarizing and documenting the results of the Internal Safety and Security Audit Program, [659.27 (f)]
- Formally approving the MTA Internal Safety and Security Audit Process annually, [659.27(i)]

- Auditing triennially the MTA's implementation of its SSPP and SEPP and submitting a Triennial Audit to the FTA, [659.29]
- Directing the MTA to develop and implement a Hazard Management Process in accordance with this Standard and 49CFR 659, [659.31(a)]
- Directing the MTA to develop and implement an Incident Notification Process in accordance with this Standard and 49CFR 659, [659.33 (a), (b), (c)]
- Formally adopting any incident investigation conducted by the MTA or any third party on MDOT's behalf, [659.35 (e)]
- Approving CAPs proposed by the MTA, [659.37 (c)]
- Submitting any changes in the RSOP Standard to the FTA, [659.39]
- Submitting the Annual Oversight Activities Report and the Certification of Compliance to the FTA, no later than 15 March of each year, [659.39 (c)]
- Prohibiting a party or entity from providing services to both the oversight agency and the rail transit agency where there exists a conflict of interest, [659.41]
- Annually certifying to the FTA, MDOT compliance with Rule 49CFR 659. [659.43]

The Program Manager, Rail Safety Oversight Program is responsible for:

- Managing the RSOP,
- Establishing, developing, publishing, maintaining the RSOP Standard and Procedures, [659.13, 659.15 (a), (b)]
- Reviewing biennially, the RSOP Standard, revising it as required, and submitting it for approval, [659.15 (a)]
- Reviewing annually the MTA SSPP, and recommending it for approval, [659.17 (b)]
- Specifying the requirements of the MTA SSPP, [659.19]
- Reviewing annually the MTA SEPP, and recommending it for approval, [659.21(c)]
- Specifying the requirements of the MTA SEPP, [659.23]
- Reviewing and recommending approval of any changes to the MTA SSPP and SEPP, [659.25 (b)]
- Reviewing annually the findings and recommendations of the MTA Internal Safety and Security Auditing Process and recommending for approval, [659.27(i)]
- Auditing at least triennially, the MTA's implementation of its SSPP and SEPP and submitting a Triennial Audit for approval, [659.29]
- Review and recommend for approval the SEPP Hazard Management Process, [659.31(b)]
- Specifying how the MTA will notify MDOT in the event of a Reportable Hazardous Condition, [659.31 (5)]
- Specifying how the MTA will notify MDOT on the resolution status of a Reportable Hazardous Condition, [659.31 (6)]
- Specifying how the MTA will investigate Reportable Incidents that occur as a result of MTA activity, [659.35 (a)]
- Establishing and implementing the RSOP Standard Incident Investigation Procedure, [659.35 (b)]
- Specifying the Incident Notification Process to be established by the MTA, [659.35 (b)]
- Requiring that the MTA provides MDOT status on investigations as requested, [659.35 (f)]

- Establishing and implementing the RSOP Standard Corrective Actions Plan Procedure, [659.37]
- Requiring that the MTA develop CAPs in accordance with this Standard and 49CFR 659, [659.37 (a), (b), (d), (e)]
- Reviewing and recommending for approval any CAPs proposed by the MTA, [659.37 (c)] and
- Tracking the implementation of each approved CAP. [659.37 (g)]

The Chief of Police, Maryland Transit Administration is responsible for:

- Developing and implementing the SEPP in accordance with this Standard and 49CFR 659, [659.21 (a), 659.23] and
- Conducting an annual review of the SEPP and submitting any changes to MDOT for approval. [659.25]

The Chief Safety Officer, Safety, Quality Assurance and Risk Management, MTA, is responsible for:

- Developing and implementing the SSPP in accordance with the RSOP Standard and 49CFR 659, [659.17 (a)]
- Facilitating an annual review of the SSPP and submitting any changes to MDOT for approval, [659.25]
- Managing the Annual Internal Safety and Security Audit process, [659.27]
- Managing the MTA Hazard Management Process, [659.31]
- Notifying, in accordance with this Standard 49CFR 659, and MTA Hazard Management Program, MDOT in the event of a hazardous condition, [659.31]
- Notifying, in accordance with this Standard and 49CFR 659, MDOT in the event of a reportable incident, [659.33]
- Assisting line management in conducting Incident Investigations, [659.35 (c)]
- Ensuring Incident Investigations are conducted in association with line management consultants and other staff, and
- Overseeing the MTA CAP Program. [659.37]
- Ensuring and formally documenting that all Safety-related CAPs submitted to MDOT have been reviewed by appropriate MTA Safety, Operating, and/or Engineering personnel
- Verifying to the MDOT Program Director through formal written notification when an approved Safety-related CAP has been completed

## 1.4 Quarterly MDOT-MTA Meetings

To ensure ongoing involvement with the MTA, MDOT is requiring quarterly meetings with the MTA to review MTA safety and security activities such as open accidents and incidents, open CAPs, the hazard management process, and status of the on-site triennial audit. By the first week after each calendar year quarter has ended, MDOT will submit to the MTA a proposed date and location for the quarterly meeting and a proposed agenda. The MTA will review and if required comment on the agenda, making recommendations for any modifications as appropriate. MDOT will schedule the quarterly meeting with the MTA.

During the quarterly meetings, MDOT retains the authority to request and review any safety and/or security records maintained by the MTA. If these records are not available at the meetings, they will be transmitted to MDOT in electronic copy via email or in hard copy via mail or fax after the conclusion of the quarterly meeting.

MDOT should prepare meeting minutes from each quarterly meeting, being sure to document any identified action items or required activities. The meeting minutes should be prepared and submitted to the MTA as soon as possible after each quarterly meeting.

## 1.5 FTA Regional Office Quarterly MTA Meeting

The FTA Regional Office holds quarterly meetings with grantee transit agencies, including MTA. FTA has requested that MDOT participate in these meetings. MDOT will provide a briefing on State Safety and Security Oversight Program issues, including open CAPs, accident/incident investigations, hazardous conditions, and other concerns, such as:

- The status of updates to the MDOT RSOPS (this document)
- The MTA SSPP and SEPP
- Open findings from FTA audits
- The MDOT Triennial Safety and Security Audit
- Special studies and hazard assessments by MDOT-RSOP
- Oversight of capital project safety and security certification efforts

MDOT will work with MTA to ensure that FTA is provided with all requested information.

## 1.6 Affected Rail Transit Agency(s)

RTAs affected by this program include any light, heavy, or rapid rail system, monorail, inclined plane, funicular, trolley, or automated guideway within the state's jurisdiction that is either operating or is in the engineering or construction phases that:

- is not regulated by the Federal Railroad Administration; and
- is included in FTA's calculation of fixed guideway route miles or receives funding under FTA's formula program for urbanized areas (49 U.S.C. 5336); or
- has submitted documentation to FTA indicating its intent to be included in FTA's calculation of fixed guideway route miles to receive funding under FTA's formula program for urbanized areas (49 U.S.C. 5336).

RTAs subject to the provisions of the state's program at the time of this revision include:

Name and address of RTA	Name and address of RTA Point-of-contact
Maryland Transit Administration (MTA)	<b><u>Safety:</u></b> Yvette Muhammad <a href="mailto:YMuhammad@mta.maryland.gov">YMuhammad@mta.maryland.gov</a> <b><u>Security:</u></b> Lt. Ernest Fenner <a href="mailto:efenner@mta.maryland.gov">efenner@mta.maryland.gov</a>

Affected RTAs shall supply, and update as necessary, the above information for their safety and security programs to MDOT. At present, the only RTA under MDOT's Rail Safety Oversight Program is the MTA. Should other RTAs develop within the State of Maryland, MDOT will review and revise its Program Standard appropriately.

## **1.7 Conflict of Interest**

No individual or entity may provide services to both MDOT and MTA when there is a conflict of interest or an appearance of a conflict. A conflict of interest occurs when an individual or entity performing work for MTA or MDOT is unable, or potentially unable, to render impartial assistance or advice on the development or implementation of the standards and provisions of this SSO manual, or to objectively perform such work without bias. A third party contractor to MDOT or MTA may not have an unfair competitive advantage over other contractors. Each contractor is subject to full disclosure on all present and potential conflicts of interest in its activities or relationships prior to being awarded a contract with MDOT or MTA.

## **1.8 Revisions and Updates**

Reviewing and updating the Rail Safety Oversight Program Standard is an ongoing and constant process. To ensure currency, this document will be formally reviewed on a biennial schedule to determine if updates are necessary. The next biennial review will begin in March, 2014, at a date and time to be determined between MDOT and the MTA Executive Director of Safety, Quality Assurance and Risk Management. After a 30-day review period, during which MDOT will develop its proposed revisions, the revised document will be circulated for review in draft form to the MTA. At least 30 days will be provided for the MTA to submit comments to MDOT. Following this review and comment period, draft changes will be approved by the Director of the Maryland SSO Program and incorporated into the next version of the document. After every update, final versions of the revised document will be submitted to the MTA's safety and security points-of-contact, as indicated in Section 1.5. Final versions of the revised document will also be submitted to FTA's Office of Safety and Security as part of MDOT's Annual Submission.

In addition to the biennial update, changes may be requested to this document based on audits from internal or external sources, such as FTA, or based on policy changes, statewide meetings, and/or organizational changes. MDOT personnel will review and respond to each request in a timely manner. Proposed changes to this document will be circulated for review in draft form to MTA. As with the biennial updates, final copies of the revised version of this document will be submitted to the MTA's safety and security points-of-contact and to the FTA as part of MDOT's Annual Submission.

## **1.9 Definitions and Acronyms**

Definitions used in this document include the following:

**Contractor** means an entity that performs tasks required on behalf of the oversight or rail transit agency. The rail transit agency may not be a contractor for the oversight agency.

**Corrective Action Plan (CAP)** means a plan developed by the rail transit agency that describes the actions the rail transit agency will take to minimize, control, correct, or eliminate hazards or deficiencies. All CAPs must include a schedule for implementing those actions, and formal indication of the individual(s) and department(s) responsible for implementation of those actions. CAPs may be derived from the following sources:

- the results of accident and incident investigations
- internal and external safety and security audits performed by MTA or MDOT
- the hazard management process

**FRA** means the Federal Railroad Administration, an agency within the U.S. Department of Transportation.

**FTA** means the Federal Transit Administration, an agency within the U.S. Department of Transportation.

**Hazard** means any real or potential condition (as defined in the rail transit agency's hazard management process) that can cause injury, illness, or death; damage to or loss of a system, equipment or property; or damage to the environment.

**Individual** means a passenger; employee; contractor; other rail transit facility worker; pedestrian; trespasser; or any person on rail transit-controlled property.

**Investigation** means the process used to determine the causal and contributing factors of an accident or hazard, so that actions can be identified to prevent recurrence.

**New Starts Project** means any rail fixed guideway system funded under FTA's 49 U.S.C. 5309 discretionary construction program.

**Oversight Agency** means the entity, other than the rail transit agency, designated by the state or several states to implement this part.

**Passenger** means a person who is on board, boarding, or alighting from a rail transit vehicle for the purpose of travel.

**Passenger Operations** means the period of time when any aspect of rail transit agency operations are initiated with the intent to carry passengers.

**Program Standard** means a written document developed and adopted by the oversight agency, that describes the policies, objectives, responsibilities, and procedures used to provide rail transit agency safety and security oversight.

**Rail Fixed Guideway System** means any light, heavy, or rapid rail system, monorail, inclined plane, funicular, trolley, or automated guideway that: (1) is not regulated by the Federal Railroad Administration; and (2) is included in FTA's calculation of fixed guideway route miles or receives funding under FTA's formula program for urbanized areas (49 U.S.C. 5336); or (3) has submitted documentation to FTA indicating its intent to be included in FTA's calculation of fixed guideway route miles to receive funding under FTA's formula program for urbanized areas (49 U.S.C. 5336).

**Rail Transit Agency (RTA)** means an entity that operates a rail fixed guideway system.

**Rail Transit-Controlled Property** means property that is used by the rail transit agency and may be owned, leased, or maintained by the rail transit agency.

**Rail Transit Vehicle** means the rail transit agency's rolling stock, including but not limited to passenger and maintenance vehicles.

**Safety** means freedom from harm resulting from unintentional acts or circumstances.

**Safety Management System** means a method of identifying hazards and controlling risks in a work and operational environment that continually monitors these methods for effectiveness.

**Security** means freedom from harm resulting from intentional acts or circumstances.

**State** means a state of the United States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, Guam, American Samoa, and the Virgin Islands.

**System Safety Program Plan (SSPP)** means a document developed and adopted by the rail transit agency, describing its safety policies, objectives, responsibilities, and procedures.

**Security and Emergency Preparedness Plan (SEPP)** means a document developed and adopted by the rail transit agency describing its security policies, objectives, responsibilities, and procedures.

## **2 Safety Program Requirements and Review**

### **2.1 Objective**

This section identifies the minimum requirements for the System Safety Program Plan (SSPP) to be developed, approved, adopted and implemented by MTA.

### **2.2 SSPP Minimum Requirements**

MDOT has adopted the minimum requirements for RTA SSPPs from 49 CFR 659.17 and 49 CFR 659.19 of the revised Rule. MDOT encourages MTA to exceed this standard in their revenue service operations and to further enhance safety by applying system safety principles throughout all life cycle phases of the transit system's activities.

MTA must develop, implement, and maintain a written SSPP that complies with the program requirements outlined in Figure 1 on the following pages, and detailed in the SSPP Review Checklist located in Appendix A of this document. These requirements are based on Appendix E of the *FTA Resource Toolkit for State Oversight Agencies Implementing 49 CFR Part 659*, issued January 2006.

At a minimum, the SSPP developed by the MTA must:

- be endorsed by top management of the transit agency;
- establish the safety goals and objectives of the transit agency;
- identify the safety roles and responsibilities of all MTA departments/functions;
- require cooperation within the transit agency and the accountability of executive leadership for addressing identified safety issues;
- identify the hazard management process to be managed by the MTA;
- identify the internal safety audit process to be managed by the MTA and overseen by MDOT;
- identify the notification, investigation and reporting procedures to be used jointly by the MTA and MDOT in managing accidents meeting thresholds specified by FTA's rule;
- require communication and coordination with MDOT in all SSO program provisions; and
- provide a schedule for the implementation and revision of the SSPP.

**Figure 1: SSPP Requirements – 21 Elements**

1. Executive Approval (Policy Statement)
2. Purpose, Goals and Objectives
  - 2.1 Purpose
  - 2.2 Goals
  - 2.3 Objectives
3. Management Structure
  - 3.1 Overview
    - 3.1.1 General Overview and History of Transit Agency
    - 3.1.2 Scope of Transit Services
    - 3.1.3 Physical Plant
    - 3.1.4 Operations
    - 3.1.5 Maintenance
  - 3.2 Integration of Safety Function
  - 3.3 Lines of Authority for Safety
4. Plan Review and Modification
  - 4.1 SSPP Review Schedule
  - 4.2 SSPP Control and Update Procedures
  - 4.3 SSPP Review and Approval by the State Oversight Agency
  - 4.4 SSPP Change Management
5. SSPP Implementation – Tasks and Activities
  - 5.1 Overview
  - 5.2 System Safety Function
    - 5.2.1 Methodology Used by the System Safety Unit
  - 5.3 Safety Responsibilities of Other Departments
  - 5.4 Safety Task Responsibility Matrix (or Narrative Description)
6. Hazard Management Process
  - 6.1 Overview
  - 6.2 Hazard Management Process – Activities and Methodologies
  - 6.3 Coordinating with the State Oversight Agency
7. Safety Certification
8. Managing Safety in System Modifications
9. Safety Data Acquisition
  - 9.1 Data Acquisition Process
  - 9.2 Access to Data
10. Accident/Incident Notification, Investigation and Reporting
  - 10.1 Overview
  - 10.2 Accident/Incident Reporting Criteria
  - 10.3 Accident/Incident Investigation Procedures
  - 10.4 Internal Notification Procedure
  - 10.5 External Notification Procedure
  - 10.6 Accident/Incident Reporting and Documentation
  - 10.7 Corrective Action Resulting from Accident Investigation
  - 10.8 Coordination with State Oversight Agency
11. Emergency Response Planning/Coordination/Training

- 11.1 Accident Response
- 11.2 Evacuation Procedures
- 11.3 Responsibilities for Emergency Preparedness
- 11.4 Coordinated Schedule
- 11.5 Emergency Drills and Exercises
- 11.6 Emergency Procedures
- 11.7 Emergency Training
- 11.8 Familiarization Training
- 12. Internal Safety Audit Process
  - 12.1 Overview
  - 12.2 Scope of Activities
  - 12.3 Audit Process
    - 12.3.1 Integrity of Audit Process
    - 12.3.2 Cycle/Schedule
    - 12.3.3 Checklists and Procedures
    - 12.3.4 Annual Audit Report
    - 12.3.5 Audit Reporting
    - 12.3.6 Coordination with the Oversight Agency
    - 12.3.7 Audit Completeness
- 13. Rules Compliance/Procedures
  - 13.1 Overview
  - 13.2 Review of Rules and Procedures
  - 13.3 Process for Ensuring Rules Compliance
  - 13.4 Compliance Techniques – Operations and Maintenance Personnel
  - 13.5 Compliance Techniques – Supervisory Personnel
  - 13.6 Documentation
- 14. Facilities and Equipment Inspections
  - 14.1 Facilities and Equipment Subject to Inspection
  - 14.2 Regular Inspection and Testing
  - 14.3 Checklists
  - 14.4 Coordination with Hazard Management Process
- 15. Maintenance Audits/Inspections
  - 15.1 Systems and Facilities Subject to Maintenance Program
  - 15.2 Resolution of Audit/Inspection Findings
  - 15.3 Checklists
- 16. Training and Certification Audit
  - 16.1 Overview
  - 16.2 Employee Safety Program
  - 16.3 Safe Number of Working Hours for Safety-Sensitive Positions
  - 16.4 Contractor Safety
  - 16.5 Record Keeping
  - 16.6 Compliance with Training Requirements
- 17. Configuration Management
  - 17.1 Overview
  - 17.2 Process for Changes
  - 17.3 Authority for Change
- 18. Compliance with Local, State and Federal Requirements
  - 18.1 Employee Safety Program
  - 18.2 Working on or near Rail Transit Controlled Property

- 18.3 Compliance with Required Safety Programs
- 18.4 Compliance with the Contractor Safety Program

19. Hazardous Materials

20. Drug & Alcohol Abuse

21. Procurement

## **2.3 Subsequent Reviews of MTA SSPP**

MTA shall conduct an annual review of its SSPP and update it as necessary to ensure that the SSPP is current at all times. The MTA shall complete the review for the previous calendar year and submit a revised SSPP to MDOT by March 1. As appropriate, referenced materials affected by the revision(s) should also be submitted with the SSPP.

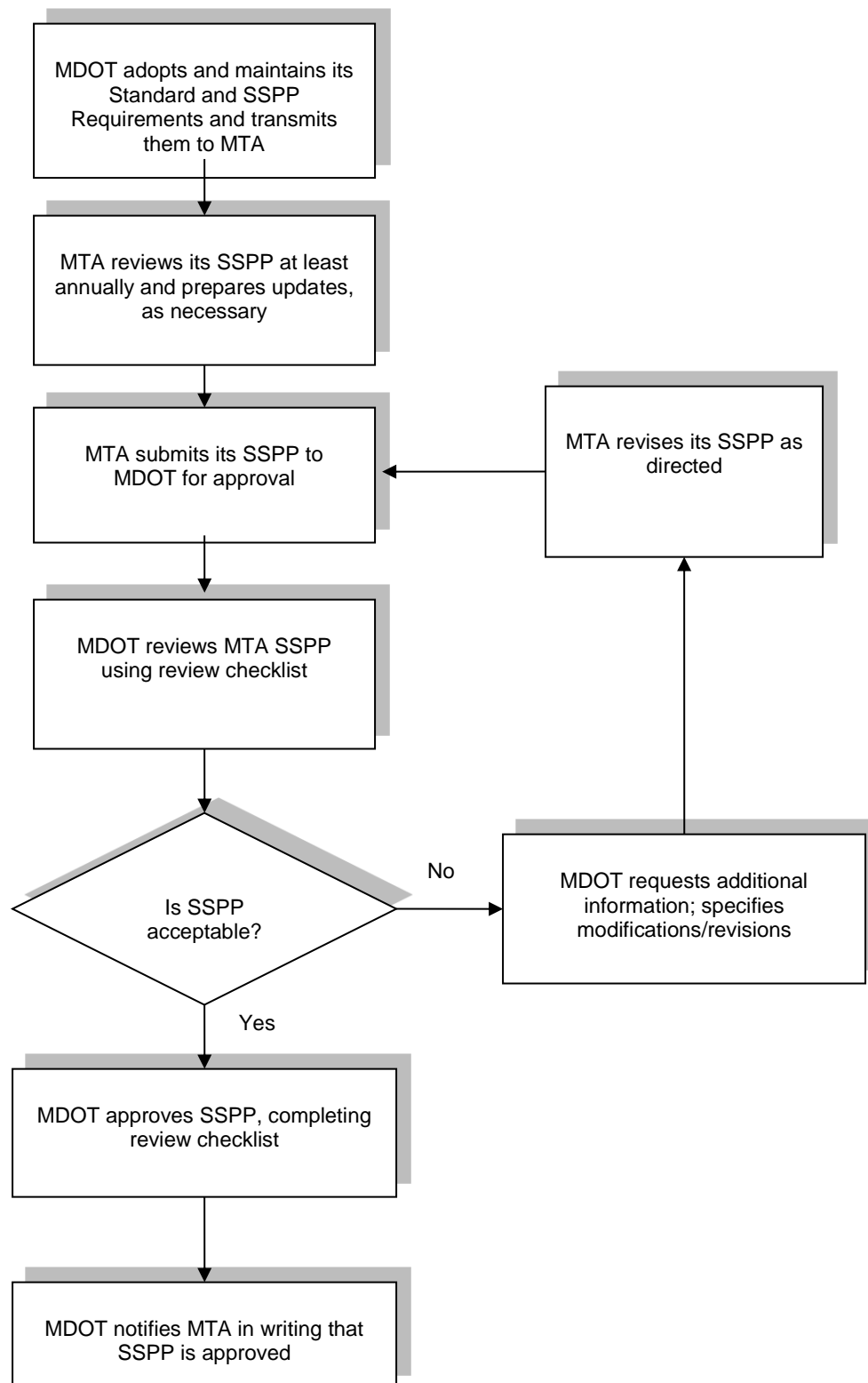
Each revised SSPP submitted to MDOT by MTA shall include a text or tabular summary that identifies and explains proposed changes and includes a time frame for completion of the associated activities. Following the process specified in Figure 2, MDOT will review subsequent SSPP submissions from MTA according to the SSPP Checklist contained in Appendix A. Upon approval of modifications, MDOT will issue to the MTA written approval of its SSPP within 30 calendar days of submission and the completed SSPP checklist.

In the event that MTA conducts its annual SSPP review and determines that no update is necessary for that year, it must prepare and submit by March 1 formal correspondence notifying MDOT of this determination. If MDOT wishes to object to this determination, MDOT will notify MTA within 30 days.

Additional reviews of the MTA SSPP may be required to address specific issues based on revisions to MDOT's program standard or procedures, revisions to FTA 49 CFR 659, audit results, on-site audits, investigations, or changing trends in incident data. Upon receipt of a written notification from MDOT for SSPP modifications, the MTA shall submit a revised SSPP to MDOT within 30 calendar days. MDOT will review and approve the revised SSPP, providing a formal approval letter and a completed review checklist (if appropriate for the change) within 30 days of receipt of the revised MTA SSPP.

In the event that the MTA initiates updates outside of the annual audit cycle, the MTA shall submit the modified SSPP, and any subsequently modified procedures, to MDOT for review and approval within 30 calendar days of the effective date of the change.

**Figure 2: SSPP Approval Process**



## **2.4 SSPP Submittals from New Starts Projects**

At present, the only Rail Transit Agency in the State of Maryland covered by MDOT's Rail Safety Oversight Program is the Maryland Transit Administration. Should a transit agency begin the process of offering rail service, MDOT will revisit its Program Standard at the outset of the New Starts process. Furthermore, any major capital expansion or service extension (consistent with the FTA definition) at the MTA will be considered a "New Start."

An RTA New Starts project shall make an initial submittal of an SSPP and all referenced procedures/materials to MDOT at least 180 calendar days before beginning passenger service operations. The initial SSPP will be approved and adopted by the RTA as part of the New Starts project safety certification process. If the New Start is a project of the MTA, an initial submittal of an SSPP is not necessary; rather, MTA will be required to update their agency-wide SSPP to account for the capital expansion or service extension in accordance with the established SSPP review and update process.

MDOT will review and approve the initial SSPP using its review checklist in Appendix A, and will transmit a formal letter of approval and the completed checklist to the RTA point-of-contact. While conducting its review, MDOT may request additional information, clarifications or revisions from the RTA safety point-of-contact. A meeting or teleconference may also be conducted to address any issues identified by MDOT during its review of the SSPP. Any additional requirements will be conveyed by MDOT.

## **2.5 Development of Safety Management System (SMS) for MTA**

Under MAP-21, rail transit systems receiving FTA funds will be required to move from the current structure in use for state safety oversight implementation (namely the SSPP) to SMS. In the transition period until MAP-21 is fully implemented, Maryland's SSO program will develop SMS-specific plan requirements for MTA that reflect the eventual full implementation of SMS at both MTA and its SSO program. These requirements, while different from requirements currently specified in this RSOPS, will mirror the current structure in that their scope will be comprehensive in nature and will address all elements of transit system operations and maintenance, while enhancing functions such as data gathering and analysis and hazard reporting and prevention. Until MAP-21 is fully implemented and MDOT is prepared to release new requirements, MDOT will continue to require MTA to carry out all elements of the SSPP as established by 49 CFR Part 659.

## 3 Security and Emergency Preparedness Plan Standard

### 3.1 Objective

This section identifies the minimum requirements for the Security and Emergency Preparedness Plan (SEPP) to be developed, approved, adopted and implemented by MTA. These requirements will remain in effect until MDOT releases new requirements under MAP-21.

### 3.2 SEPP Minimum Requirements

The MTA must develop, implement, and maintain a written SEPP that complies with the program requirements outlined in Figure 3 on the following page, and detailed in the SEPP Review Checklist located in Appendix B of this document. These minimum requirements are based on Appendix G of the *FTA Resource Toolkit for State Oversight Agencies Implementing 49 CFR Part 659*, issued January 2006. The FTA guidance addresses all of the activities specified in 49 CFR Part 659.21 and 49 CFR Part 659.23. In addition, compliance with the FTA guidance is required for RTAs participating in the Department of Homeland Security (DHS), Office of Grants and Training. The program requirements also affirm the authority of the Transportation Security Administration (TSA) in the areas of rail transit security and terrorism preparedness.

At a minimum, the SEPP developed by the MTA must:

- identify the policies, goals, and objectives for the security program endorsed by the chief executive of MTA;
- document the MTA process for managing threats and vulnerabilities during operations and for major projects, extensions, new vehicles and equipment, including integration with the safety certification process;
- identify controls in place that address the personal security of passengers and employees;
- specify the mechanism through which the MTA will ensure the reporting of security incidents meeting the thresholds outlined in Section 6.2.1 of this document, such as a general order or SOP;
- document the MTA process for conducting internal security audits to evaluate compliance and measure the effectiveness of the Security and Emergency Preparedness Plan; and
- document the MTA process for making available its Security and Emergency Preparedness Plan and accompanying procedures to MDOT for review and approval.

In addressing this last item, MDOT has authority in place to protect against the public disclosure of MTA security documents. To ensure the further protection of these documents, MDOT requests that all security submissions are either delivered to MDOT in person, via email, or delivered via overnight mail with a signature required.

**Figure 3: SEPP Requirements – 7 Elements**

1.0	System Security Program Introduction
1.1.	Purpose of the SEPP
1.1.1	System Security
1.1.2	Emergency Preparedness
1.2	Goals and Objectives
1.2.1	Goals
1.2.2	Objectives
1.3	Scope of Program
1.4	Security and Law Enforcement
1.5	Management Authority and Legal Aspects
1.6	Government Involvement
1.7	Security Acronyms and Definitions
2.0	System Description
2.1	Background & History of System
2.2	Organizational Structure
2.3	Human Resources
2.4	Passengers
2.5	Services and Operations
2.6	Operating Environment
2.7	Integration with Other Plans and Programs
2.8	Current Security Conditions
2.9	Capabilities and Practices
3.0	SEPP Management Activities
3.1	Responsibility for Mission Statement and System Security Policy
3.2	Management of the SEPP Program
3.3	Division of Security Responsibilities
3.3.1	Security/Police Function Responsibilities
3.3.2	Security Responsibilities of Other Departments/Functions
3.3.4	Job-specific Security Responsibilities
3.3.5	Security Task Responsibilities Matrix
3.3.7	Security Committees
4.0	SEPP Program Description
4.1	Planning
4.2	Organization
4.3	Equipment
4.4	Training and Procedures
4.5	Emergency Exercises and Evaluation
5.0	Threat and Vulnerability Identification, Assessment, and Resolution
5.1	Threat and Vulnerability Identification
5.1.1	Asset Analysis
5.1.2	Security Data Collection for the Identification of Threats and Vulnerabilities
5.1.3	Other Sources of Information – Security Audits, Testing and Inspection Programs
5.1.4	Identifying Threats for Prioritized Assets
5.1.5	Identifying Vulnerabilities
5.2	Threat and Vulnerability Assessment
5.3	Threat and Vulnerability Resolution

6.0	Implementation and Evaluation of SEPP
6.1	Implementation Tasks for Goals and Objectives
6.2	Implementation Schedule
6.3	Evaluation
7.0	Modification of SEPP
7.1	Initiation
7.2	Audit Process
7.3	Implement Modifications

### 3.3 Annual Review of MTA SEPP

The MTA shall conduct an annual review of its SEPP and update it as necessary to ensure that the SEPP is current at all times. MTA shall complete the review for the previous calendar year and submit a revised SEPP to MDOT by March 1. As appropriate, referenced materials affected by the revision(s) should also be submitted with the SEPP.

Each revised SEPP submitted to MDOT by MTA shall include a text or tabular summary that identifies and explains proposed changes and includes a time frame for completion of the associated activities. MDOT will review subsequent SEPP submissions from MTA using the SEPP checklist found in Appendix B. Upon approval of modifications, MDOT will issue to MTA written approval of its SEPP within 30 calendar days and a copy of the completed SEPP review checklist.

In the event that the MTA conducts its annual SEPP review and determines that no update is necessary for that year, it must prepare and submit by March 1 formal correspondence notifying MDOT of this determination. If MDOT wishes to object to this determination, MDOT will notify MTA within 30 days.

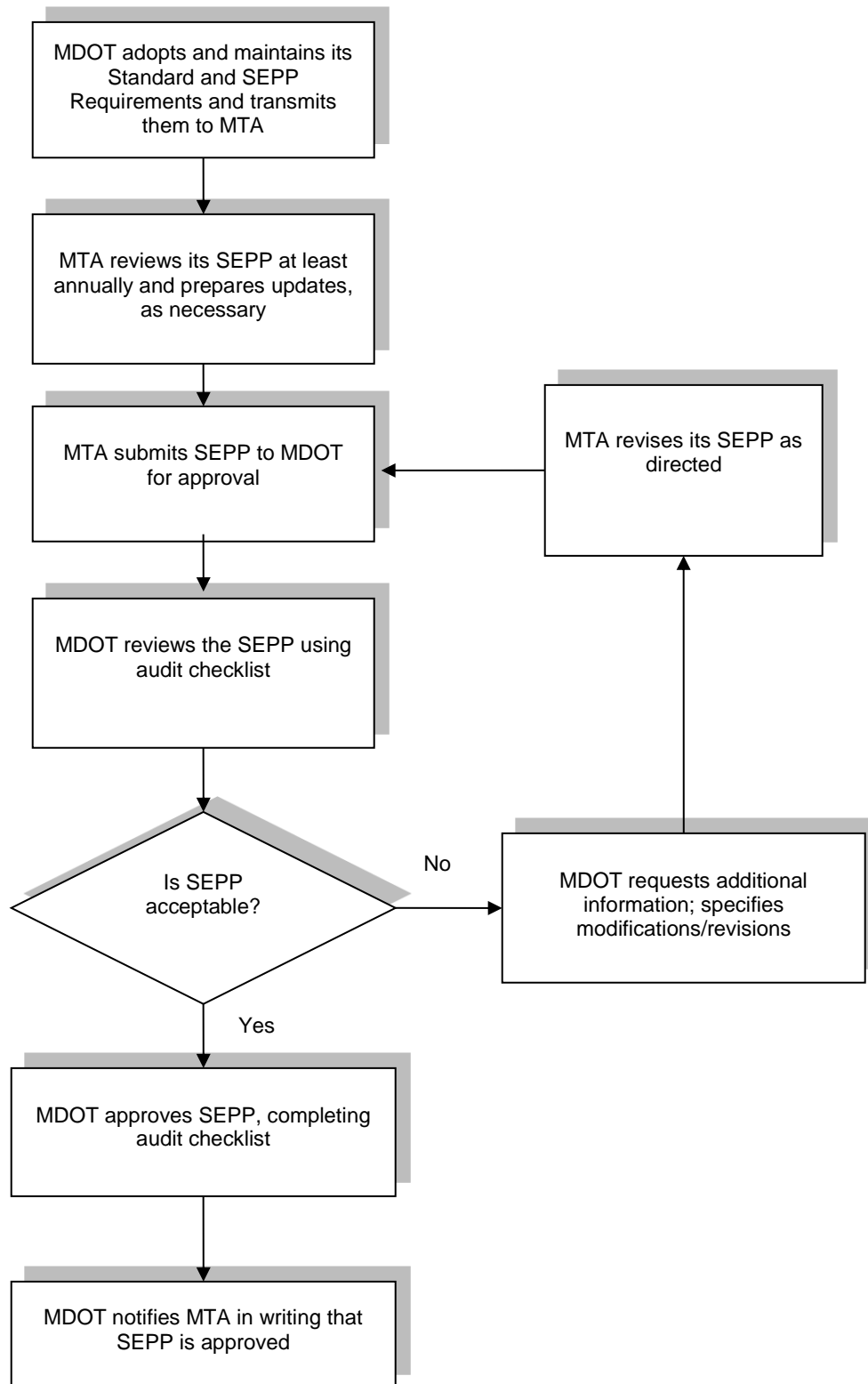
Additional reviews of the MTA SEPP may be required to address specific issues based on revisions to MDOT's program standard or procedures, revisions to FTA 49 CFR 659, audit results, on-site audits, investigations, or changing trends in crime data or terrorism threat levels. Upon receipt of a written notification from MDOT for SEPP modifications, MTA shall submit a revised SEPP to MDOT within 30 calendar days. MDOT will review and approve the revised SEPP, providing a formal approval letter and a completed review checklist (if appropriate for the change). This review and approval process will be completed 30 days after receipt of the modified SEPP.

In the event that MTA initiates updates outside of the annual review cycle, MTA shall submit the modified SEPP, and any subsequently modified procedures, to MDOT for review and approval within 30 calendar days of the effective date of the change.

MDOT encourages MTA to ensure that submissions of updated SEPPs are also made to DHS/Office of Grants and Training and TSA, following the conditions specified in grant program, directives or other requirements and regulations administered by these agencies.

Figure 4 provides a visual depiction of the MDOT SEPP review and approval process.

**Figure 4: SEPP Approval Process**



### **3.4 SEPP Submittals from New Starts Projects**

At present, the only Rail Transit Agency in the State of Maryland covered by MDOT's Rail Safety Oversight Program is the Maryland Transit Administration. Should a transit agency begin the process of offering rail service, MDOT will revisit its Program Standard at the outset of the New Starts process. Furthermore, any major capital expansion or service extension (consistent with the FTA definition) at the MTA will be considered a "new start."

An RTA New Starts project shall make an initial submittal of a SEPP and all referenced procedures/materials to MDOT at least 180 calendar days before beginning passenger service operations. This submission shall be made following any restrictions placed on these materials by either the RTA or MDOT to ensure their protection from public release. The initial SEPP shall be approved and adopted by the RTA as part of the New Starts project safety certification process.

MDOT will review and approve the initial SEPP using its review checklist, and will transmit a formal letter of approval and the completed checklist to the RTA point-of-contact. During its review, MDOT may make requests for addition information, revisions or modifications. Any additional requirements will be conveyed by MDOT.

### **3.5 SEPP Readiness Audit**

MDOT reserves the right to conduct an on-site SEPP Readiness Audit of any New Starts project. This audit would be conducted after receipt of the RTA's initial SEPP submission but prior to its entry into passenger operations. This assessment would focus on the capabilities of the RTA to implement its SEPP during passenger operations. This assessment may be conducted in conjunction with MDOT review and approval of the initial SEPP submission.

This assessment may be conducted formally, following the procedures specified for the Triennial Safety and Security Audit, identified in Section 7 of this document. Or this assessment may be conducted less formally, as an on-site walk-through of the RTA's security and emergency preparedness program with the RTA's security point-of-contact and other RTA personnel to ensure both the accuracy of its initial SEPP submission and the capacity of the RTA to implement its SEPP.

Based on the type of audit conducted, MDOT may issue an official report with required corrective actions (see Section 7 of this document), or may address any findings through the review and approval process used for MTA's SEPP.

## 4 Internal Safety and Security Audit Program

### 4.1 Objectives

The section describes MDOT requirements for the internal safety and security audit program to be implemented by MTA. While under MAP-21 MDOT may release updated or modified requirements on this process, MDOT will continue to require MTA to use the existing 21 elements of the current SSPP structure for its internal safety and security audits.

### 4.2 Minimum Requirements for Audits

As described in the SSPP and SEPP, MTA must implement a process for the performance of ongoing internal safety and security audits to ensure the implementation of the MTA SSPP and SEPP, and to evaluate the effectiveness of these plans. To ensure compliance with FTA's 49 CFR Part 659.27, MTA must:

- Develop and submit to MDOT an internal safety and security audit schedule, which addresses all required 21 elements of the SSPP (Part 659.19) and all seven (7) required elements of the SEPP (Part 659.23), over a three-year cycle. At a minimum, annual updates of this schedule must be provided to MDOT with the annual report discussed in Section 4.3 below.
- Develop checklists and procedures for conducting each of the 21 required SSPP audits. These checklists and procedures must contain appropriate criteria for determining whether all of the provisions contained in the 21 elements of the SSPP are being implemented at MTA, in addition to evaluating whether the SSPP itself contains all of the required provisions described above. As such, checklists and procedures developed by MTA must formally reflect MTA's own internal audit process, *separate* from the SSPP Review Checklist in Appendix A of this document, which is only for ensuring that the SSPP contains all of the required elements and does not by itself comprise an appropriate internal safety audit checklist and/or procedure.
- Develop checklists and procedures for conducting each of the seven (7) required SEPP audits. These checklists and procedures must contain appropriate criteria for determining whether all of the provisions contained in the seven (7) elements of the SEPP are being implemented at MTA, in addition to evaluating whether the SEPP itself contains all of the required provisions described above. As such, checklists and procedures developed by MTA must formally reflect MTA's own internal audit process, *separate* from the SEPP Review Checklist in Appendix B of this document, which is only for ensuring that the SEPP contains all of the required elements and does not by itself comprise an appropriate internal safety audit checklist and/or procedure. .
- Notify MDOT not less than 30 days prior to the conduct of any and all internal safety or security audits. Notification must be in writing and may be transmitted to MDOT via memorandum, email or fax. Notification should include the time and location of the internal audit. MDOT retains the authority to participate in any and all internal audits.
- In addition, at the time of notification, checklists and procedures relevant for the audit being conducted must be submitted to MDOT. These materials may be submitted to MDOT in electronic copy via email or in hard copy via mail or fax. For security audits, any

special provisions established by MTA or MDOT to ensure the protection of these materials must be followed.

- Based on the results of each audit conducted, MTA must prepare a written report documenting recommendations and any corrective actions identified as a result of the audit. Each report and resulting CAPs must be submitted and approved by MDOT within 60 days of the conclusion of each internal safety and security audit.
- MTA must also prepare an **Internal Safety and Security Audit Findings Log** to track through to implementation all findings, recommendations, and corrective actions developed as a result of the internal safety and security audit process. This log should be available to MDOT and may be referenced during activities performed in support of the Hazard Management Process (discussed in Section 5 of this document).

#### **4.3 Minimum Requirements for Annual Internal Safety and Security Audit Report**

By January 31 of each year, MDOT requires MTA to submit an annual report to MDOT that documents the internal audits conducted for the previous year. This report may be submitted in electronic copy via email or in hard copy via mail or fax. For sections devoted to the results of security audits, any special provisions established by MTA or MDOT to ensure the protection of these materials must be followed.

This annual report must include:

- a listing of the internal safety and security audits conducted for that year;
- a discussion of where MTA is in meeting its three-year internal audit schedule, including the identification of any obstacles in meeting the schedule and any proposed mitigation measures;
- an updated schedule for the next year's audits;
- the status of all findings, recommendations and corrective actions resulting from the audits conducted that year; and
- any challenges or issues experienced by the MTA system safety function or security/police function in obtaining action from/compliance with these findings, recommendations and corrective actions during that year.

MDOT will review this report using the checklist contained in Appendix D within 30 days, and either approve or disapprove the report. If MDOT is unable to approve the report, MDOT staff may request additional information, clarifications or revisions from the MTA safety or security point-of-contact. A meeting or teleconference may also be conducted to address any issues identified by MDOT during its review of the annual report. Any additional requirements will be conveyed to MTA by MDOT.

In addition to the annual report, also by January 31, MDOT requires that MTA submit a formal letter of certification, signed by the rail transit agency's chief executive, stating that, based on the evaluation performed during the internal safety and security audit process during the previous year, MTA is in compliance with its SSPP and SEPP.

If MTA determines that findings from its internal safety and security audits indicate that MTA is not in compliance with its SSPP, the chief executive must then identify the activities that MTA will

take to achieve compliance. MDOT must review and approve the MTA certification letter and action plan using the procedures specified in Section 8 of this document.

## **5 Hazard and Risk Management Process**

### **5.1 Objective**

This section describes MDOT requirements for the MTA Hazard Management Process. The objective of this process is to provide MDOT with an ongoing role in overseeing MTA's identification, assessment, and resolution of hazards.

### **5.2 Application of Criteria and Minimum Requirements**

To fully comply with MDOT hazard management process requirements, the MTA SSPP must clearly develop and document a comprehensive process to identify, report, evaluate, prioritize, control, track, and resolve hazards. MTA must apply its hazard management process to all known hazards, including hazards discovered during audits, inspections, and investigations, as well as hazards reported by employees, contractors, or other observers.

MTA must apply its hazard management process to all other hazards discovered by MTA personnel during the normal course of revenue and non-revenue service operations. Applicable hazards may also stem from new starts projects, extensions, modifications of existing systems, operational or environmental changes, and other known or yet-to-be-revealed sources.

The MTA hazard management process should also contain proactive measures that are specifically intended to identify and document hazards. Proactive hazard identification measures should include practices applied continuously in the normal course of operations and maintenance activities, as well as periodic hazard identification campaigns targeting specific areas of interest.

At a minimum, the MTA hazard management process contained in the MTA SSPP must:

- define MTA's overall approach to hazard management, including goals and objectives of the MTA Hazard Management Program;
- describe the implementation of an integrated, system-wide MTA hazard resolution process;
- specify all sources and mechanisms used by MTA to identify hazards;
- include both continuous MTA hazard identification methods and periodic, targeted hazard identification campaigns at MTA;
- define the MTA process for evaluating, prioritizing, controlling, and eliminating hazards;
- describe the MTA tracking mechanism applied to all hazards from the original hazard detection through the resolution, control, and/or elimination of the hazard;
- define minimum notification and reporting thresholds implemented by MTA to inform MDOT of hazards;
- specify the process by which MTA will provide ongoing reporting of hazard resolution activities to MDOT; and
- identify and describe MTA methods for evaluating the effectiveness of the hazard management and resolution process.

### **5.3 Prioritization of Hazards**

High and serious Priority 1 and Priority 2 hazardous conditions are defined as meeting the standard in the Hazard Risk Index and Hazard Risk Categories of the MTA SSPP. These include any Hazard Risk Assessment Values of 1 through 9. MTA must ensure that the MTA SSPP clearly defines high priority (Priority 1 and Priority 2) hazards. MTA must also ensure all other hazards are prioritized according to the Hazard Risk Assessment Values scale.

The MTA SSPP must specify that Priority 1 and 2 hazards include, but are not limited to, near misses, red signal violations, other operational rule violations, incident trends, and maintenance failures.

To ensure additional priority assignment accuracy, and to ensure that all critical MTA departmental stakeholders are made aware of high priority hazards, the MTA SSPP should establish a system-wide tool to support collection of all relative information for analyzing hazards. The MTA SSPP should provide a separate and distinct section to ensure an enhanced level of attention is applied across all Priority 1 and 2 hazards at MTA. The section should also emphasize the importance of tracking Priority 1 and 2 hazard corrective actions.

The MTA SSPP should require the development of a formal process to require appropriate MTA internal departments to review operational data to identify safety issues and hazards and to ensure that identified hazards are adequately addressed within an appropriate timeframe.

The MTA SSPP must emphasize the importance of reporting high priority hazards. Further, the MTA SSPP must specify and implement a control process that ensures a consistent identification and notification procedure is applied across all Priority 1 and 2 hazards. The MTA SSPP must also indicate distinct thresholds for reporting Priority 1 and 2 hazards, and it must also specify frequencies for reporting.

### **5.4 Minimum Criteria for Identification, Tracking, Notification, and Investigation/Reporting**

MTA must notify MDOT by telephone or fax of all suspected or assessed high and serious Priority 1 and 2 hazardous conditions within one business day of discovery. After the initial notification, MTA shall submit the Preliminary Hazardous Condition Report found in Appendix C to MDOT by fax or email.

To ensure that MTA tracks hazards and that MDOT is notified of all hazardous conditions affecting rail safety or security, MTA shall consider each item in the following list to comprise Priority 1 and 2 hazards:

**Identification, Tracking, Notification, and Reporting Requirements for Specified Hazards:**

<b>Hazard Type</b>	<b>Must Be Tracked in MTA Hazard Log? (Y/N)</b>	<b>Must Be Reported to MDOT Within One (1) Business Day of Discovery?</b>	<b>Must Be Investigated by MTA?</b>
Incidents involving employees working in an MTA right-of-way that are investigated by MTA	Y	Y	Y
Malfunctions of safety critical systems that could result in a catastrophic or single-point failure	Y	Y	Y
All derailments along Light Rail and Metro, including derailments within yard limits – note that main line derailments also fall under the notification and investigation criteria set forth in this document.	Y	Y	Y
Broken or missing safety-critical equipment, infrastructure, or systems that could result, or have resulted, in employee or passenger injury, or damage to MTA property.	Y	Y	Y
Discoveries of systemic or patterns of employee non-compliance with MTA rules and procedures.	Y	Y	Y
Rail transit vehicle collisions with fixed objects on the mainline or in the yards.	Y	Y	Y
Face-up or near miss of rail vehicles.	Y	Y	Y
Grade crossing warning system activation failure.	Y	Y	Y
Speed restriction or track closure due to track or system damage.	Y	Y	Y

Hazard Type	Must Be Tracked in MTA Hazard Log? (Y/N)	Must Be Reported to MDOT Within One (1) Business Day of Discovery?	Must Be Investigated by MTA?
Fire or smoke on a track, on a vehicle, or in a facility.	Y	Y	Y
Broken or loose wheel or axle.	Y	Y	Y
Split switch without derailment.	Y	Y	Y
Unintended train uncoupling during revenue service.	Y	Y	Y
Signal violations or overruns.	Y	Y	Y
Unauthorized train encroachment or overrun into work zone.	Y	Y	Y
Vehicle door openings on the wrong side, off station platforms, or during train movement.	Y	Y	Y
Incapacitated operator in revenue service.	Y	Y	Y
Exposed energized electrical conductors or equipment that can be contacted by passengers or employees.	Y	Y	Y
Employee or patron electric shock.	Y	Y	Y

## 5.5 Data Collection, Analysis, and Exchange

Once the requirements of MAP-21 are fully implemented by the SSO, MTA will be required to collect a higher volume and greater scope of safety data related to transit operations and maintenance activities. This data will be gathered from many of the same departments it is obtained from currently; however, the depth of information and the frequency with which data is collected will increase. In addition, Safety staff at MTA will play a larger role in data gathering and analysis, as well as coordinating this process internally with MTA departments.

As MDOT works to implement the requirements of MAP-21, MDOT will work with MTA to analyze this increased volume of safety data across the system, in particular highlighting areas of concern that may become hazards or are trending towards unsafe conditions. MTA will also be required to create a process for securely storing this data, as well as processes for regularly assessing trends and communicating with MTA departments regarding any issues or concerns resulting from this analysis.

## 5.6 Hazard Tracking Log

The MTA SSPP must specify the approach to identifying and assessing hazards. MTA may use a number of methodologies to determine and evaluate hazards, including:

- informal processes, such as reports from operations and maintenance personnel,
- results from rules compliance checks and employee evaluations,
- the mining of maintenance data,
- results from facilities and vehicles inspections,
- findings from internal safety and security audits, and
- daily review of MTA's unusual occurrences log.

MTA may also apply:

- trend analyses, hazard classifications, and resolutions using the Mil-Std 882 process,
- hazard analyses using inductive processes (Preliminary Hazard Analysis, Failure Modes and Effects Analysis, Job Hazard Analysis, etc.) and
- hazard analysis using deductive processes (Fault Tree Analysis).

MTA must identify the process for consolidating all hazard information into a single, coordinated process. The comprehensive process should utilize the most effective tools, such as worksheets, forms, databases, and other mechanisms to support a standardized and organized hazard database or Hazard Tracking Log.

The Hazard Tracking Log must contain all hazards identified through the various methods applied by MTA. The Hazard Tracking Log should be organized in a way that is most effective and efficient for MTA to ensure that all hazards are being identified, tracked, resolved, and so on. The Log should also clearly indicate the Hazard Priority so that all stakeholders may easily identify critical-level items. Figure 5 provides a sample hazard tracking log.

**Figure 5: Sample Hazard Tracking Log**

MTA Hazard Tracking Log							
Control No.	Description	Date Identified	Source	Priority	Assessment Results	Recommendations	Status

- **Control No.** – refers to the number assigned to the hazard by MTA.
- **Description** – refers to a brief narrative summary of the hazard – what it is; where it is located; what elements it is comprised of; etc.
- **Date Identified** – refers to the date the hazard was identified at MTA.
- **Source** – indicates the mechanism used to identify the hazard, i.e., operator report, near-miss, accident investigation, results of internal safety or security audit, rules compliance or training program; maintenance failure, facility or vehicle inspection, trend analysis, formal hazard analysis, etc.
- **Priority** – clearly indicates the level of urgency associated with each hazard.
- **Assessment Results** – refers to the hazard severity and hazard frequency ratings initially assigned to hazard by MTA.
- **Recommendations** – refers to the actions recommended by MTA to address the hazard and to bring it into a level of risk acceptable to management.

- **Status** – refers to the status of the recommendations. Status may be designed as not started, open, in progress, or closed.

MTA must submit the proposed Hazard Tracking Log to MDOT as part of the MTA SSPP for review and approval by MDOT. Upon approval, MTA must submit the log to MDOT on a quarterly basis in electronic format via email, in hard copy via postal mail, or via fax. MDOT will review the Hazard Tracking Log and forward any questions or requests for information to the MTA safety point-of-contact identified in §1.5 of this document.

## **5.7 Review of Safety Data and Agreement on Safety Performance**

As part of the transition to full implementation of MAP-21 requirements, SSO program staff and MTA will meet regularly (at least quarterly) to review safety performance data for the previous months since the last meeting. This data review and analysis is discussed further in section 5.5.

In addition to regular reviews of MTA safety data, under MAP-21, MDOT and MTA will work together and with other MTA operational staff to create safety performance goals for specific indicators, such as near misses, wrong side door openings, training and certification qualifications, worker's compensation claims, recurring maintenance issues, and other system information. These goals will be established upon FTA promulgation of categories for data collection, as well as actions to be taken by MDOT in the case that MTA safety performance is not meeting established goals.

### **5.7.1 Targeting Hazard Trends**

Under MAP-21, MDOT and MTA must work together to assess areas whose safety data indicates a developing hazard or conditions that may result in unsafe practices. MTA staff must continuously monitor the data collected from MTA departments to gain a picture of what areas might present issues. At least quarterly, MDOT will meet with MTA Safety staff to review and analyze safety data collected over the previous months to determine if any areas of concern are present. If MTA and MDOT staff determine a particular trend merits further action, MTA must coordinate communication with the relevant MTA department(s) to assign corrective action when appropriate. MDOT will work with MTA to establish this process. Furthermore, MTA will share data at least on a quarterly basis with MDOT regarding key performance indicators and other safety critical information.

## **5.8 Investigation of Hazards**

MTA or its contractor must investigate certain severe hazardous conditions in accordance with the provisions specified by MTA in its SSPP and the Hazard Management Process and Accident Investigation Procedure submitted to and approved by MDOT. At a minimum, MTA shall investigate all Priority 1 hazardous conditions. Upon notification of a hazardous condition by MTA, MDOT may formally request that MTA conduct an investigation. MTA shall maintain a file of hazards reported to MDOT and make these files available to MDOT for review and evaluation.

### **5.8.1 Initial Investigation Report**

MTA shall submit to MDOT the Preliminary Incident Report of its investigation of the hazard within 72 hours of the hazard being reported to MDOT. MTA may transmit an electronic copy via email or a hard copy via mail or fax.

### **5.8.2 Status Investigation Reports**

MTA shall submit to MDOT status reports of the hazard investigation at least monthly until the investigation is completed. MTA may transmit these status reports as an electronic copy via email or as hard copy via mail or fax.

### **5.8.3 Final Investigation Report**

Upon completing the investigation of the hazard, MTA shall prepare and submit to MDOT for review and adoption a final report that includes a description of activities, findings, identified causal factors, and a CAP. MTA shall transmit an electronic copy of the final investigation report to MDOT via email. Within 15 calendar days of receiving a report designated as final, MDOT will review the report, using the process specified in Section 6 of this document. Within 15 calendar days of acceptance of the MTA investigation report, MDOT will issue to MTA written approval and adoption of the report. In the event that MDOT does not accept the MTA report, MDOT will communicate in writing the area(s) of disagreement or concern. The report shall not be considered final until all conditions are met and the report is approved by MDOT.

### **5.8.4 CAPs**

MTA shall develop a CAP to correct those elements or activities identified as deficient during the course of a hazard investigation. In addition, MDOT may, during the course of an investigation, identify corrective actions to avoid or minimize the reoccurrence of the unsafe condition or address a related, systemic problem. Procedures associated with development, submission, review and approval of CAPs are the subject of Section 8 of this document. At any time during an investigation, MDOT reserves the right to request a full briefing from MTA on the known circumstances of the investigation, including corrective actions.

### **5.8.5 MDOT Investigation of Hazards**

MDOT reserves the right to conduct independent investigations of identified hazards. A description of the MDOT investigation process is provided in Section 6.3.2 of this document.

Upon its determination to conduct an independent investigation, MDOT will inform MTA in writing of its intention to conduct an investigation of a reported hazard no later than 7 calendar days following receipt of the MTA initial report. MDOT will advise MTA of the following:

- investigation processes;
- identity of individual(s) conducting the investigation; and
- tentative schedule of investigation elements.

MTA shall assist the MDOT investigators by providing required information and resources necessary for conducting the investigation. MDOT or its contractor will complete an investigation report that includes a description of activities, findings, identified causal factors, and a CAP. The report will be finished within 30 calendar days after completion of the investigation, and will be delivered to MTA for review. MTA will have 15 days to prepare a CAP and submit it to MDOT.

## **6 Safety Investigations and Reporting**

### **6.1 Objective**

This section addresses the requirements in place for the notification, investigation and reporting of accidents meeting the thresholds specified in FTA's 49 CFR Part 659.33 or as required by MDOT.

### **6.2 Minimum Requirements**

#### **6.2.1 Initial Notification**

MTA shall notify MDOT within 2 hours of any safety or security event involving a rail transit vehicle or taking place on MTA controlled property where one or more of the following occurs:

- a fatality at the scene; or where an individual is confirmed dead within 30 calendar days of a transit-related incident;
- injuries requiring immediate medical attention away from the scene for two or more individuals;
- property damage to MTA Rail Transit vehicles, non- MTA Rail Transit vehicles, other MTA Rail Transit property or facilities, and non- MTA Rail Transit property that equals or exceeds \$25,000;
- an evacuation due to life safety reasons;
- a collision at a grade crossing; (all collisions at intersections between a MTA Rail Transit vehicle and any other vehicle in Light Rail mixed traffic situations are reportable as grade crossing collisions)
- a main-line derailment;
- a collision with an individual on an MTA Rail Transit right of way; or
- a collision between an MTA Rail Transit vehicle and a second MTA Rail Transit vehicle or an MTA Rail Transit non-revenue vehicle.

MTA shall notify the MDOT RSOA of an incident by phone, regardless of the time of day. If MTA is unable to contact the MDOT RSOA point of contact by phone, an e-mail with all of the incident facts must be sent to all MDOT RSOA points of contact.

MTA shares track (at one particular crossing) with the general railroad system and is subject to the Federal Railroad Administration (FRA) notification requirements. MTA shall notify MDOT within 2 hours of an incident for which MTA must also notify the FRA.

#### **6.2.2 Incident Reports**

MTA shall provide a Preliminary Incident Report to MDOT within 72 hours of the incident. MTA shall provide a Draft Final Incident Report to MDOT in electronic copy via email within 30 days. The following information shall be provided by MTA in the Final Incident Report of the event. If the information is not pertinent to the event, the item should be identified on the Final Incident Report as "non-applicable" (N/A). The report includes, but may not be limited to descriptions of the following:

- Name and Job Title of person reporting accident, incident or hazardous condition
- Event Type (fatality, injuries, property damage, evacuation, derailment or other)
- Location, Time, Date

- Fatalities
- Injuries
- Rail transit vehicle(s) involved (type, number)
- Other vehicle(s) involved (type, number)
- Property damage estimate (attempt shall be made to report actual dollar amounts)
- NTSB reportable
- FRA reportable
- MTA primary person (i.e., Chief Investigator) conducting the investigation (name, title, phone numbers and email address)
- Physical Characteristics of the Scene
- Interview Findings
- Sequence of Events
- Probable Cause (s) and Contributing Factors
- Conclusions
- Recommendations and Corrective Actions
- Document Control Number
- Attachments that include all related reports (i.e., Service Quality, police, operator, witness statements, photographic evidence)

If MDOT is not satisfied with the Draft Final Report or does not approve the proposed CAPs the MTA shall provide additional information at MDOT's request. If MDOT is satisfied with the Draft Final Report it will be adopted and a written MDOT Incident/Accident Adoption Report will be provided within 15 days, at which point the report becomes the Final Incident Report. MDOT shall be notified of all accidents which, while not reportable, may identify a hazardous condition within twenty four (24) hours of their occurrence. Should a non-reportable accident represent high or serious priority 1 and 2 hazardous condition as defined in the Hazard Risk Index and Hazard Risk Categories, MTA shall report them within two (2) hours as required in section 5.4 of this standard.

### **6.3 Investigations of Reportable Events**

49 CFR Part 659.35 requires MDOT to investigate, or cause to be investigated, at a minimum, any incident involving a rail transit vehicle or taking place on rail transit-controlled property meeting the notification thresholds identified in Section 6.2. In conducting these investigations, MDOT may authorize MTA to conduct an investigation on its behalf, conduct its own independent investigation, or, if the NTSB is investigating the accident, join in the investigation through NTSB's Party System.

#### **6.3.1 MTA Conducts Investigation on Behalf of MDOT**

In general, MDOT authorizes MTA to conduct accident investigations on its behalf, unless otherwise notified. For all investigations conducted by MTA on behalf of MDOT, MTA must use investigation procedures that have been approved by MDOT.

MTA must submit any updates and revisions to its accident investigation procedures to MDOT as they are completed and implemented by MTA or with the annual update of the SSPP. These procedures should be treated as part of the SSPP.

In the event that authorization is conferred upon MTA to conduct the investigation, MDOT may participate in the investigation process. The terms of participation are specified in the MTA SSPP and in the MTA accident investigation procedures.

Each MTA investigation conducted on behalf of MDOT must be documented in a final report that includes a description of investigation activities, findings, identified causal factors, and a CAP, if applicable.

At its discretion, and as specified in its accident investigation procedures, MTA may separate its investigation report into two parts: (1) Preliminary Incident facts and summary report; (2) description of investigation activities, investigation findings, and determination of the most probable cause and additional contributing causes; and recommendations to prevent recurrence, including a CAP.

The investigation report prepared by MTA shall be submitted to MDOT within 30 calendar days following incident and completion of the investigation. Until the investigation is completed, MTA shall prepare and submit monthly status investigation reports. The status investigation reports at a minimum shall include:

- minutes of any meeting held by an MTA ad hoc reportable event investigation committee or contractor;
- disclosure of any immediate corrective actions MTA has planned or completed;
- principal issues or items currently being evaluated; and
- overall progress and status of the investigation.

At any time during an investigation, MTA shall be prepared to provide a full briefing on the known circumstances of the event, status of MTA or NTSB investigation, and investigation activities.

Upon receipt of the MTA accident investigation report, MDOT will review the report. In the event that MDOT does not agree with the description of the investigation, the identification of primary and contributing causes, or the findings of the MTA report, MDOT shall communicate in writing to the MTA safety-point-of-contact the area(s) of disagreement or concern. MDOT will work with the MTA to address these issues in the MTA's accident investigation report. In the event that agreement cannot be reached on these issues, MDOT will issue its own accident investigation report, which may be no more than the MTA report and the MDOT dissent.

MDOT approval must be obtained on the CAP portion of the MTA accident investigation report and each CAP must be submitted to MDOT following the procedures described in section 8 of this standard. In the event that MDOT takes issue with MTA's proposed CAP, MDOT and MTA must work together until MDOT approval can be obtained.

To reduce the potential for conflict, MDOT encourages MTA to submit a draft version of the accident investigation report to MDOT so that agreement may be obtained on the most probable cause, additional contributing causes, CAP, and an implementation schedule before the report is finalized and formally issued by MTA.

Reports and records of accident investigations submitted to MDOT by MTA, as well as related reports and records produced by both MDOT and MTA, will be treated as confidential information, and will not be released without concurrence by both MDOT and MTA.

## **6.4 Independent MDOT Investigations**

Under MAP-21, MDOT may conduct independent investigations of any accident meeting the thresholds specified in Section 6.2, utilizing its own personnel or an authorized contractor. Any

investigation conducted by MDOT or its contractor must be in accordance with the approved MTA investigation procedures. MDOT investigations may also follow the American Public Transportation Association (APTA) Standard for Rail Transit Accident/Incident Investigation (Volume 4 - Operating Practices APTA RT-S-OP-002-02 dated revised 3/31/12).

MDOT will inform MTA of its intention to conduct an investigation or participate in an MTA investigation of a reported event no later than 7 calendar days following receipt of the MTA initial report. MDOT will advise MTA as to the personnel who will be conducting the independent investigation, and provide a preliminary schedule as to the investigation process.

All MDOT authorized accident investigation personnel are granted authority under the state safety oversight program to conduct an investigation and evaluate records, materials, data, analysis, and other information pertinent to the investigation. It is expected that MTA will provide to the MDOT investigation team the resources and information necessary to conduct the investigation in an effective and efficient fashion.

MDOT accident investigation personnel may conduct a variety of observations, tests, and other activities, including field analyses, operational surveys, interviews, record checks, data analysis, and other on-site and off-site tasks which may be necessary for a comprehensive investigation. If MDOT accident investigation personnel require information or analysis which is not readily available, or which may require additional resources by MTA, it will request this data in a written request to MTA safety point-of-contact via email or memorandum.

In conducting its investigation, MDOT will, at a minimum, perform the activities described in the Accident/Incident Investigation Procedures contained in Appendix C.

## **6.5 NTSB Investigations**

The NTSB may investigate a reportable event to achieve its primary function to promote transportation safety. In such case, the NTSB is responsible for the investigation; the determination of facts, conditions, and circumstances; the cause or probable cause or causes; and recommendations to reduce the likelihood of recurrence. MDOT will support the NTSB as a member of its Party System.

In the event of an NTSB investigation, MTA shall be responsible for briefing MDOT in a timely manner on NTSB activities including meetings, interviews, requests for data, functional testing, examination of equipment, and the results of drug and alcohol tests. MTA shall provide MDOT with a copy of all written correspondence to the NTSB concerning a reportable event or investigation, and also shall provide MDOT a copy of all NTSB reports and any recommendations concerning the event or its investigation, upon receipt by MTA. MDOT will assist the NTSB by providing information requested about MTA critical practices and other matters as appropriate.

If the NTSB releases preliminary findings and recommendations, MDOT is authorized to participate in any discussions and audits with MTA and NTSB. MDOT and MTA will review the NTSB findings, draft, and final reports and make a determination of whether or not to adopt the NTSB recommendations. Should the NTSB recommendations be adopted, MTA shall implement the findings and each CAP must be submitted to MDOT following the procedures described in section 8 of this standard.



## **7 External Safety and Security Audit Process**

### **7.1 Objective**

This section addresses MDOT's procedures for the Triennial Safety and Security Audit to be performed on-site at MTA. This audit will determine the extent to which MTA is meeting its SSPP and SEPP requirements, the effectiveness of the SSPP and SEPP, and whether the SSPP and SEPP should be updated. The procedures described below will be performed in accordance with both 49 CFR Part 659 and MAP-21 requirements.

### **7.2 Minimum Requirements**

As specified in 49 CFR Part 659.29 at least every three (3) years, MDOT must conduct an onsite audit of MTA's implementation of its SSPP and SEPP. Alternatively, this on-site audit may be conducted in an ongoing manner over the three-year timeframe.

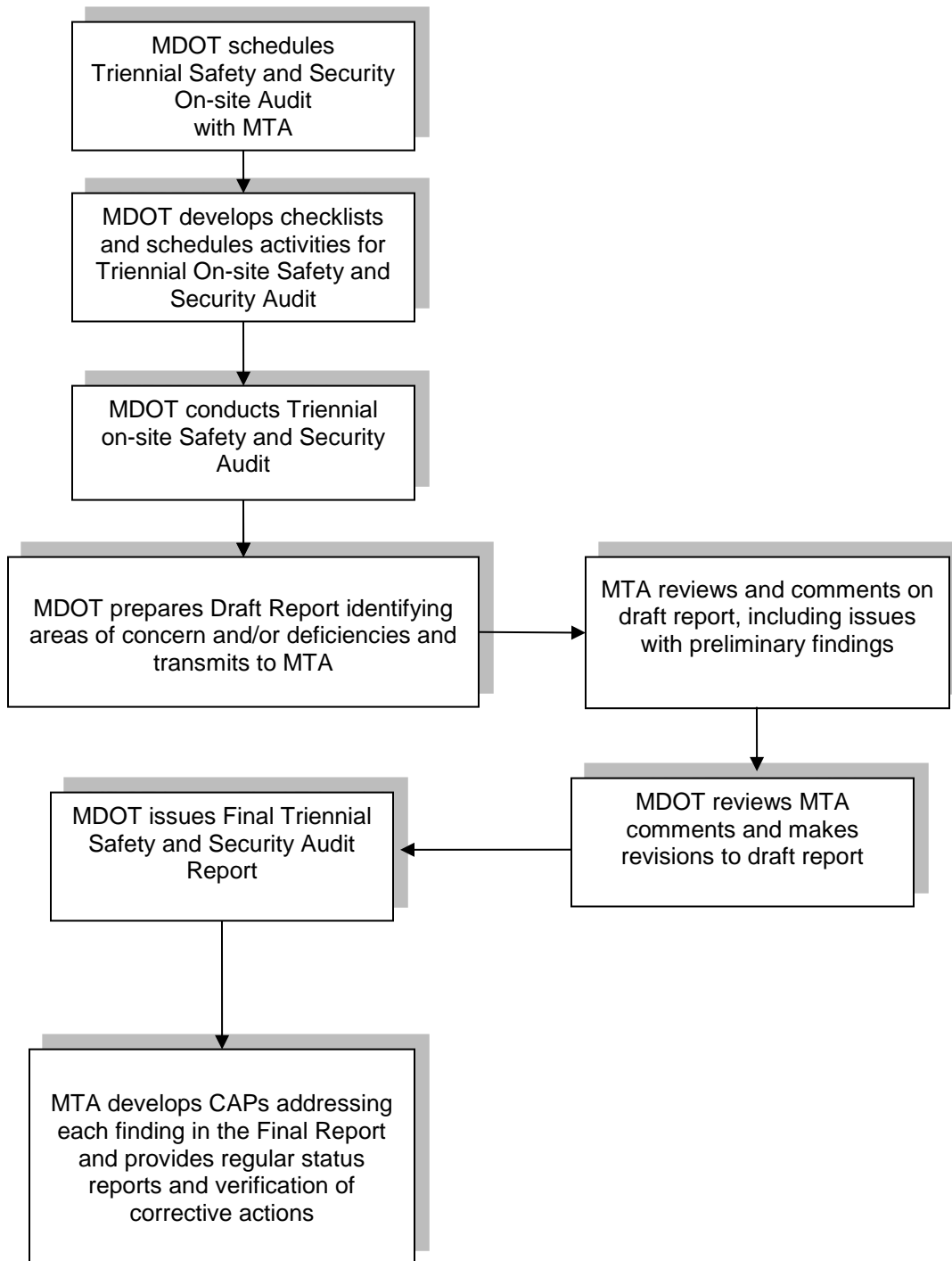
In conducting the MDOT Triennial Audit, MDOT will establish an audit team and prepare a schedule, procedures and a checklist to guide the audit process. Criteria will be established through which MDOT can evaluate MTA's implementation of its SSPP and SEPP.

As the conclusion of the audit, MDOT will prepare and issue a report containing findings and recommendations resulting from the audit, which will analyze the effectiveness of the SSPP and SEPP and whether either should be updated. Corrective actions required as a result of this audit will be managed through the process described in Section 8 of this document.

MDOT will submit its completed report for the triennial safety and security audit to FTA as part of its Annual Submission.

Figure 6 illustrates the Triennial Safety and Security Audit process.

**Figure 6: Triennial Safety and Security Audit Process**



## **7.3 Process and Procedure**

### **7.3.1 Pre-Audit Preparations**

MDOT will determine whether the audit will be conducted by MDOT personnel, a contractor, or a combination of both. If a contractor is to be used, required activities will be added to the milestone schedule to ensure that contractor services are available in time to plan for and conduct the audit.

MDOT will establish a schedule for conducting the audit. This schedule will include milestones for the development of checklists to guide the audit, notification of MTA regarding the audit, conduct of a pre-audit meeting with MTA, conducting the audit, preparation of a draft report, delivery of the draft report to MTA, issuance of a final report, and the receipt, review, approval and tracking through to implementation of MTA CAPs.

Based on the milestone schedule, MDOT will assign a team of MDOT and/or contractor personnel to conduct the audit. Each team shall have a designated lead auditor and supporting team members.

Once assigned, the team will begin its work by reviewing in detail the MTA's SSPP, SEPP, and referenced and supporting procedures and materials. These materials, as well as FTA guidance on performing three-year audits, will form the basis of MDOT's audit checklist. As necessary, while preparing this checklist, MDOT may contact the MTA's safety or security point-of-contact and request additional information, procedures, or documentation. These requests may be transmitted via email, memorandum or fax. For example, the team may request and review the MTA's operating rule book, bulletins, orders, instructions, and procedures; maintenance manuals and procedures for vehicles, track and signals; design criteria and project engineering procedures for extensions or modifications; internal safety and security audit checklists and reports; the results of the hazard management process; and the status of all CAPs.

Utilizing these materials, the team will complete its checklist development. This checklist will identify:

- the safety and security requirements to be audited;
- the applicable reference documents that establish the acceptance criteria for those requirements; and
- the method of verification.

Space shall also be provided on the checklists to record the results of the audit. Once the checklists are completed, MDOT will formally notify the MTA safety and security points-of-contact of the upcoming audit, no fewer than 60 days before the audit is scheduled. This notification will occur via memorandum.

Shortly after notification, MDOT may schedule a pre-audit meeting with MTA for clarification of any questions and concerns, and coordination of daily schedules with MTA. Either during this meeting or via email or hard copy mail, MDOT will also transmit its audit checklists to the MTA safety and security points-of-contact. The checklists will be delivered to MTA as soon as they are developed. Every attempt will be made to provide the checklists no later than 15 calendar days prior to the start date of the audit.

### **7.3.2 On-Site Audit**

To begin the audit, the MDOT team will conduct an entrance meeting with MTA to resolve any outstanding issues and verify the schedule previously agreed to during the pre-audit meeting. This meeting establishes the goals and objectives of the audit team with respect to audit activities, and allows MTA staff to ask questions regarding the audit schedule or any specific audit methodologies.

The MDOT team will then conduct the on-site safety and security audit using checklists developed during the pre-audit period and transmitted to MTA before the on-site portion of the audit. MDOT auditors will also use subject matter expertise, industry best practices, and knowledge of comparable transit systems to evaluate how MTA operations and maintenance can best execute the requirements of the SSO program. Each of the 21 SSPP elements will be addressed through audit sessions, and MDOT auditors will cover those subject areas in which they have appropriate knowledge and expertise.

In performing this audit, the MDOT team will verify whether all items on the checklists are performed or present as applicable, through interviews, document and record audits, first-hand observations of operations and maintenance activities, spot checks, and visual examinations and measurements. These activities will vary by SSPP element depending on how best auditors are able to observe and verify that a particular process or requirement is carried out. Results will be recorded in the checklists as well as individual notes taken by auditors. When results indicate a deficiency or discrepancy with the acceptance criteria specified in the checklist, the auditor will note this, and incorporate it into a finding for the draft report.

At the conclusion of the on-site audit, the MDOT team will conduct an exit meeting with MTA, providing an overview of the major findings, observations and concerns. MTA will also have the opportunity to answer any questions or clarify any issues raised by MDOT at this meeting. MDOT will also review the timetable for its submittal of a draft report to MTA for review and comment, and the subsequent final report submitted to MTA and FTA once comments and questions have been resolved.

### **7.3.3 Draft and Final Triennial Safety and Security Audit Reports**

Following the completion of the on-site audit, the MDOT team shall prepare a draft report with the completed audit checklists and supplemental forms included as attachments.

This draft report will provide:

- Verification that the SSPP and SEPP are integral parts of MTA's overall management, engineering, operating, and maintenance practice and/or identification of deficiencies or areas requiring improvement.
- Verification that the SSPP and SEPP are audited, at a minimum, on an annual basis in order to ensure that they remain dynamic and viable documents and/or identification of deficiencies or areas requiring improvement.
- Verification that MTA regularly monitors compliance with the SSPP and SEPP, through a continuous and ongoing internal safety and security audit process and/or identification of deficiencies or areas requiring improvement.
- Verification that MTA identifies potentially serious conditions, hazards, threats and vulnerabilities and ensures that methods to eliminate, control, and mitigate them are implemented and/or identification of deficiencies or areas requiring improvement.

- Verification that investigations are conducted following established procedures adopted by MTA and/or identification of deficiencies or areas requiring improvement.
- Verification that MTA's emergency preparedness and terrorism preparedness programs are being implemented as specified in the SSPP and SEPP and/or identification of deficiencies or areas requiring improvement.
- Verification that specific activities and tasks identified in the SSPP and SEPP are being carried out as specified in these plans and/or identification of deficiencies or areas requiring improvement.

A draft report shall be completed by the audit team and submitted to MDOT for review and comment within 30 calendar days of the conclusion of the on-site audit. MDOT and the audit team shall have 15 days to resolve any issues with the draft report and submit to MTA. MTA shall have 30 days to respond to the draft report with questions and comments. MDOT and the audit team will make any necessary revisions to the draft report and issue the final report no later than 90 days after the conclusion of the on-site audit. The final report will contain findings identified during the audit period, and MTA will have 30 days to develop CAPs (CAPs) to address each of the findings.

While individual reports may vary, the basic outline used for the MDOT Triennial Safety and Security Audit Report is presented in Figure 7.

MDOT will transmit the completed triennial on-site safety and security audit reports to FTA as part of its Annual Submission.

CAPs submitted by MTA to address audit findings will be reviewed, approved and tracked through to implementation following the process specified in Section 8 of this document.

**Figure 7: Sample Triennial Safety and Security Audit Final Report Outline**

- A Final Report Outline
- B Final Review
- C Audit
- D MTA Implementation of Security and Emergency Preparedness Plan
- E MTA Implementation of System Safety Program Plan
1. Policy Statement
  2. Purpose, Goals and Objectives
  3. Management Structure
  4. Plan Audit and Modification
  5. Plan Implementation
  6. Hazard Management Process
  7. Safety Certification Process
  8. System Modifications
  9. Safety Data Acquisition
  10. Incident Notification, Investigation, and Reporting
  11. Emergency Management Program
  12. Internal Safety Audit Program
  13. Rules Compliance
    - o Operations, Supervision and Control
    - o Right-of-Way Safety Rule Compliance
  14. Facilities and Equipment Inspections
    - o Stations Maintenance
    - o Elevator/Escalator Maintenance
    - o Tunnels and Structures
    - o Facility/Shop Safety
    - o Communications
  15. Maintenance Audit and Inspection Program
    - o Railcar Maintenance
    - o Track Inspection and Maintenance
    - o Traction Power
    - o Signal Systems
  16. Training and Certification Program
  17. Configuration Management Process
  18. Compliance with Local, State, and Federal Safety Requirements
  19. Hazardous Materials Program
  20. Drug and Alcohol Program
  21. Procurement Program
- F. Appendices

## **8 CAPs and Data Monitoring**

### **8.1 Objectives**

This section addresses MDOT's procedure to ensure that CAPs are developed and implemented by MTA to address hazardous conditions identified through external and internal safety audits, accident investigations, the hazard management process, deficiencies in MTA's implementation of its SSPP or SEPP, or other recommendations specified by MDOT. All CAPs, from any source, developed by MTA require review and approval by MDOT.

As the MDOT SSO program is in transition to fully implementing MAP-21 requirements, this section will be enhanced to include further CAP-related activities and processes.

### **8.2 Minimum Requirements**

MTA must develop and MDOT must formally approve CAPs for the following:

- results from investigations in which identified causal factors or recommendations are determined by MTA, NTSB, FTA, or MDOT as requiring corrective actions;
- findings from MDOT Triennial Audit, including findings of "non-compliance" and findings of "compliance with recommendation";
- MDOT recommendations resulting from inspections of MTA operations or facilities;
- findings from MTA Internal Safety and Security Audits;
- High and Serious priority 1 and 2 safety and security hazards, findings or deficiencies identified from any source;
- major capital projects (PHA, TVA) items;
- complaints generated internally, externally, or by the general public that have a specific safety implication; and
- findings resulting from any data/trend analysis performed (of accidents, hazards, etc.).

Each CAP that requires MDOT approval shall identify:

- a CAP identification number
- MTA department head(s) and individual(s) responsible for implementing corrective actions
- priority and/or risk category of hazard or deficiency
- source of hazard or deficiency
- a hazard or finding summary
- hazard analysis, ensuring additional hazards are not introduced with CAP implementation
- CAP summary with planned activities or actions to resolve the deficiency or hazard, including any verification activities for CAP performed by MTA and MDOT
- date CAP was opened, date CAP is expected to be closed, date CAP was actually closed, and date CAP received approval/verification from MDOT
- an alternate or interim CAP in advance of implementing the eventual CAP, if appropriate
- list of interim milestones for CAPs that require a longer implementation period
- current budget/projected budget for CAP, if applicable

All CAPs shall be submitted to MDOT for review and approval. CAPs should be submitted regularly to MDOT, or within 30 days of the finding or hazard being documented, and should specify a due date for closure. For safety-critical findings requiring CAPs, a full report must also be submitted to MDOT along with the CAP.

In addition, MDOT will regularly attend CAP meetings held by MTA departments, and CAPs will be a standing agenda item for SSO-MTA coordination meetings. MTA must also present CAP key performance indicators to MDOT during these meetings, including how many CAPs are currently open, how many have been closed since the last meeting and in what categories, and others to be determined by MDOT.

In the event that MDOT and MTA dispute the need for, findings requiring, or enforcement of a CAP, MDOT will allow MTA 30 calendar days to submit its case. MDOT will then issue final direction to MTA regarding the CAP. In cases where a resolution is not forthcoming in 30 days, MDOT will select a Panel of non-MTA experts to review CAP arguments and decide on final CAP implementation activities. Representatives from MDOT will participate in this Panel. CAPs will be subject to Panel review to ensure that a CAP's implementation does not introduce new hazards into the system.

Should the NTSB conduct an investigation, MTA and MDOT shall review the NTSB findings and recommendations to determine whether or not to develop a corrective action, with MDOT leading this evaluation. If a CAP is required either by the NTSB or MDOT, MTA shall develop it. MTA should consider employing a root cause analysis technique for a finding or hazard's primary and contributing causes.

### **8.3 Initial CAP development**

MTA shall submit the CAP to MDOT for approval within 30 calendar days after either MTA or MDOT has identified the need for a CAP. Depending on the complexity of the issue requiring corrective action, and at MDOT's discretion, additional time may be granted to MTA to prepare the CAP. All CAPs must be submitted to MDOT by the MTA Safety function. MDOT recognizes that the Safety function does not develop all CAPs; however, when an MTA department provides a CAP for submittal to MDOT, that CAP must include with it written verification of the Safety function's review and concurrence.

### **8.4 CAP Review and Approval**

MDOT must review and approve all MTA CAPs, including those generated by internal safety and security audits or Safety department inspections and observations. MDOT will notify the MTA of its approval or rejection of a CAP within 15 calendar days of receiving the CAP. In the event MDOT rejects a CAP, MDOT will state its reasons in writing and recommend revisions. MTA shall submit a revised CAP to MDOT no later than 15 calendar days following the rejection. MDOT approval is not necessary for short-term measures required to immediately mitigate hazardous conditions; however, these measures shall not replace the need for a long-term CAP. MDOT will provide its support for such short-term measures, or outline its concerns regarding them, in its written approval or disapproval of the formal CAP.

### **8.5 Monitoring, Tracking, and Verification**

The MTA shall maintain a Corrective Action Monitoring Log of MDOT reportable and non-reportable hazards or deficiencies, and provide MDOT with quarterly corrective action implementation updates. This log shall be submitted quarterly to MDOT in electronic form via email, or in hard copy via mail, fax or at the quarterly Rail Safety Oversight meeting. MTA shall

verify to MDOT in written form when the corrective actions plans for MDOT reportable hazards or deficiencies have been fully implemented. The MTA corrective action is then subject to independent MDOT verification. MDOT will maintain a parallel Corrective Action Monitoring Log to ensure all CAPs reported from MTA are captured by MDOT.

As CAPs are closed out, MTA must submit verification that the corrective action(s) has been implemented as described in the CAP or that a proposed alternative action(s) has been implemented. During implementation of these CAPs, Safety personnel should ensure evidence of implementation is acquired, such as documentation of inspections, or observations of certain operational elements in action. The MTA Safety or Security function must verify in written form that the corrective action has been verified as being fully implemented and any evidence, or the method of verification, shall be provided to MDOT. This written verification should be submitted with the quarterly CAP Tracking Log in electronic or hard copy format. The verification should be in unalterable format electronically, and should bear a scanned or electronic signature. In the quarterly log, the MTA must also inform MDOT concerning any alternative actions for implementing a CAP.

After MTA personnel have verified implementation of CAPs, MDOT must also review, verify, and close each CAP. MDOT may perform independent verification activities such as inspections or observations to confirm a CAP has been implemented. MDOT will provide CAP approval with a formal letter detailing the approved CAP actions and signed by the Program Manager. MDOT must verify the implementation of a CAP prior to its closure.

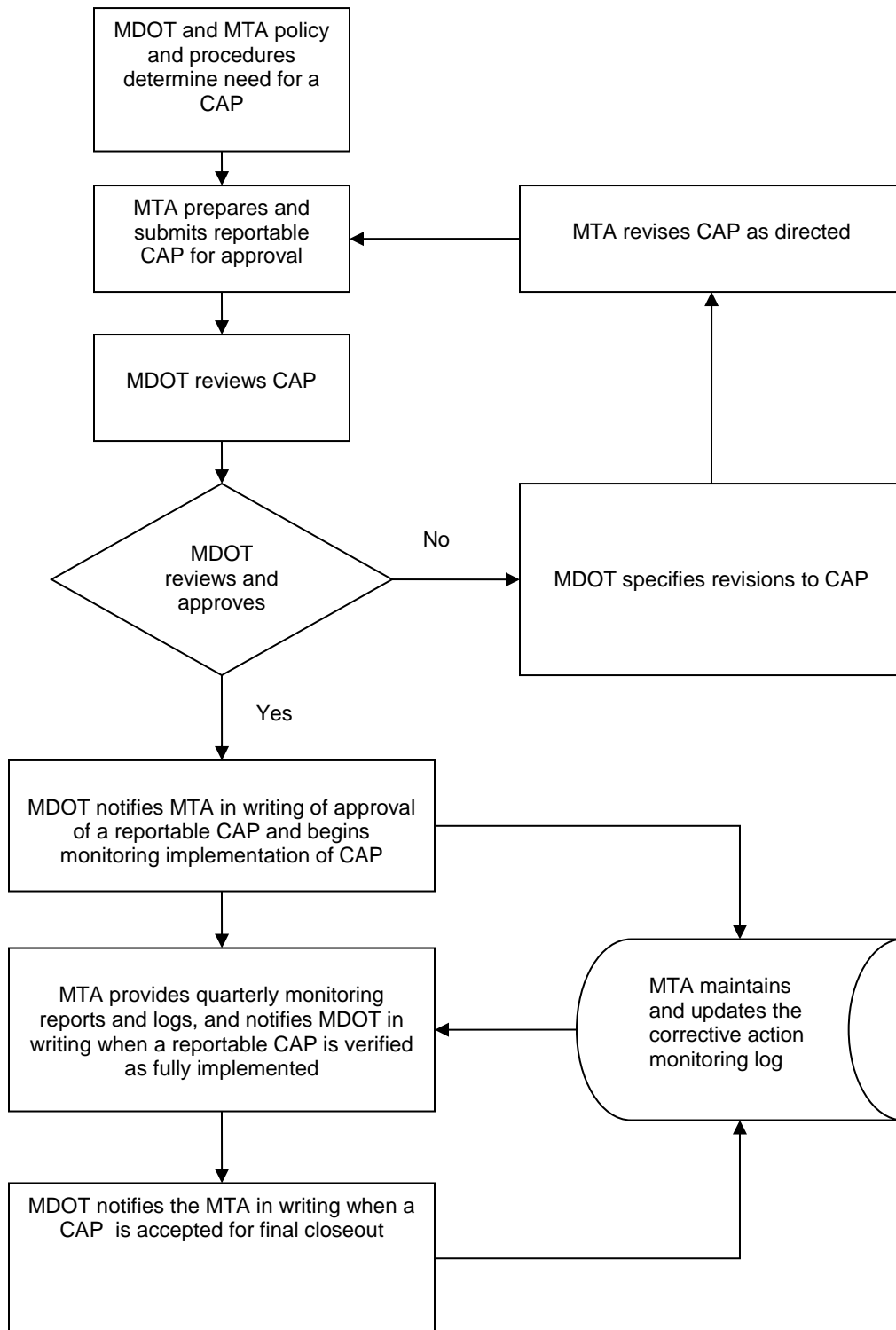
Due to the sensitive nature of security related information and the requirements to protect Security Sensitive Information, MDOT may receive regular briefings and/or reports on the status of system security and the implementation of corrective actions from the MTA Police at their regular Comparison Statistics Meetings (Compstat). MDOT may attend Compstat meetings on an as-needed basis, contingent upon the existence of security-sensitive CAPs, though generally at least one such meeting each quarter.

Each MDOT CAP log shall:

- include a MTA tracking identification number assigned to the hazard or deficiency
- include priority number based on the MTA SSPP Hazard Risk Assessment or MTA SEPP Threat and Vulnerability Identification Process
- include the dates the CAP was submitted to MDOT, approved by MDOT, verified by the MTA and final close out by MDOT
- include the current status of all CAPs

Figure 9 identifies the CAP process.

**Figure 9: CAP Process**



## 9 Interaction with Federal Agencies

### 9.1 Objective

This section addresses MDOT's procedures for making initial, annual and periodic submissions to FTA's Office of Safety and Security, in compliance with 49 CFR Part 659.39 and Part 659.43.

### 9.2 Reporting Requirements to FTA

*Initial submission.* The following information, contained in MDOT's initial submission to the FTA, must be updated as necessary:

- The name and address of the MDOT State Safety Oversight Director;
- The names and addresses of the transit agencies subject to TDO jurisdiction under 49 CFR Part 659;
- MDOT's program standard; and
- MDOT's certification that the SSPP and the SEPP have been developed, reviewed, and approved.

In the event that the state should ever determine that oversight authority should be transferred to another agency of the state, MDOT will work with this agency to ensure that a new Initial Submission is delivered to FTA within thirty (30) calendar days of the determination to make change. MDOT will also work with this agency to ensure that at no point are the RTAs affected by 49 CFR Part 659 (i.e., MTA) left without a duly authorized oversight agency.

*Annual submission.* Before March 15 of each year, MDOT must submit the following to FTA:

- A publicly available annual report summarizing its oversight activities for the preceding twelve months, including a description of the causal factors of investigated accidents, status of corrective actions, updates and modifications to rail transit agency program documentation, and the level of effort used by the oversight agency to carry out its oversight activities.
- A report documenting and tracking findings from triennial safety audit activities and whether a triennial safety audit has been completed since the last annual report was submitted.
- Program standard and supporting procedures that have changed during the preceding year.
- Certification that any changes or modifications to the rail transit agency system safety program plan or SEPP have been reviewed and approved by the oversight agency.

*Annual Certification.* With its Annual Submission, MDOT must certify to the FTA that it has complied with the requirements of 49 CFR Part 659. MDOT will submit this certification electronically to FTA using a reporting system specified by FTA. MDOT will maintain a signed copy of each annual certification to FTA, subject to audit by FTA.

*Periodic submissions.* Status reports of accidents/incidents, hazardous conditions, and CAPs or other program information must be forwarded to the FTA upon request. Following an FTA SSO audit, MDOT may be required to respond to specific findings of non-compliance or areas of

compliance with recommendations. MTA may also be required to respond to FTA recommendations resulting from an SSO audit.

MDOT will ensure that all submissions to FTA are submitted electronically using the reporting system specified by FTA.

### **MAP-21 Requirements**

Under MAP-21, MDOT will be required to make annual status reports on the overall safety of MTA to the FTA, the Governor of Maryland, and the MTA Board of Directors of RTA. In the transition period before full implementation of MAP-21, MDOT will be required to fulfill the current regulations of Part 659, as well as those included in MAP-21. Once MAP-21 is fully implemented, those requirements must be followed.

## **10 Oversight of Projects Prior to Revenue Service**

MDOT may conduct audits and special studies of issues related to the safety of the MTA Light Rail and Metro at its discretion. In addition to the audit areas listed below (Safety and Security Certification Programs, System Expansions and Modifications, SSPP Readiness Audits for New Starts projects, and Pre-Revenue Service Audits for major capital projects), MDOT may initiate an audit of a particular subject matter area in response to a given accident, incident (including near-misses), or hazardous condition, or trend pattern in a safety-related area. Such audits and studies may result in a final report containing findings and recommendations that shall be subject to the CAP process described in Section 8.

The entirety of SSO program requirements is applicable to rail fixed-guideway public transit systems in the engineering and construction phases as well as revenue service. However, MDOT, may conduct additional oversight activities related to these projects as well.

### **10.1 Audits of Safety and Security Certification Program**

MTA is required to have a Safety and Security Certification (SSC) program to help ensure that safety and security concerns, and hazards, threats and vulnerabilities are adequately addressed prior to the initiation of passenger operations for New Starts and subsequent major projects to extend, rehabilitate, or modify an existing system, or to replace vehicles and equipment. MDOT shall provide general review and oversight of the SSC process. MTA shall submit SSC plans and documents to MDOT for review and comment on all projects subject to the SSC process. MDOT shall participate in SSC-related meetings and document audits, and may issue specific findings, guidance, and/or other directives to MTA in order to address safety and security issues related to certifiable elements and certifiable elements and certifiable items and potential workarounds.

### **10.2 Audits of System Expansions and System Modifications**

In order to assess safety and security of new processes within MTA, MDOT may audit major system modifications and expansions, and other projects that have a significant safety or security impact. The following list includes types and examples of MTA expansions or modifications that MTA shall submit for MDOT review:

- New starts or system expansions
- Major reconstruction of existing lines
- Major redesign and installation of system components
- New or significantly reconstructed maintenance and operating facilities
- New vehicle procurements or mid-life overhauls
- Other projects deemed to have significant safety implications, including projects implemented by others that have a direct impact on MTA operations

The review and oversight by MDOT will depend significantly on the type of system expansion or modification under review. MDOT may audit and all development phases or applicable projects including:

- Project planning
- Preliminary engineering
- Final design
- Procurement

- Construction
- Operations and maintenance procedures and plans
- Training
- Testing
- Start-up

The MDOT audit may include each of these phases, so that any safety- and security-critical issues can be resolved as early as possible, to avoid or minimize the need for retroactive modification and retrofits. This approach should allow MTA to resolve safety and security issues in a timely manner, so as not to delay the project implementation schedule.

In auditing each phase of a major system expansion or modification, MDOT will focus its resources on providing an independent audit of safety- and security-critical system elements and activities, in addition to the more general aspects of a project that could affect the safety and security of existing operations. The materials MDOT will review throughout the project may include the following:

- Planning studies (that evaluate alternatives and define a project's scope)
- Design criteria and standards
- Design documents
- SSC plans
- Project Management Plans (PMPs – required on major FTA-funded projects)
- Configuration Management plans
- Construction plan and schedules
- Operating changes and plans during project construction
- Transportation & maintenance operating procedures
- Training programs and procedures
- Integrated test program
- Emergency procedures
- System safety and security audits
- Security plans

After the audit of a particular project phase has been completed, MDOT will provide an immediate oral briefing to MTA and issue a draft report detailing its findings and recommendations within 60 calendar days of the end of the audit. Any MTA comments shall be provided within 30 calendar days and the MDOT final report will be issued within 30 days of receipt of MTA comments.

MDOT may continue to audit each phase of the project until project completion. At project completion, the system expansion and modification will be incorporated into the triennial audit of the operating and maintenance activities at MTA.

### **10.3 Pre-Revenue Service Audit/ Readiness Audit**

MDOT shall conduct an on-site Pre-Revenue Service Audit (PRSA) of major projects to expand or modify the existing rail system. This audit will be conducted after substantial completion of the project, but prior to entry into passenger operations. The PRSA will focus on the SSC process as well as operations, training, maintenance, and security/emergency readiness in order to ensure safe and secure passenger service.

This audit is designed to assess the safety and security of the project and the readiness of MTA's associated safety, security, operational, and maintenance procedures and preparations. The completion of a SSC process is required by Part 659 and noted in this Program Standard. SSC is intended to ensure that elements and items that are critical to the safe and secure operation of the project at each phase (from design to revenue operations) identified as part of a safety certifiable items list (SCIL) have been verified as completed and/or safe and secure, or that there are appropriate workarounds in place. These SCIL elements and items include physical systems and facilities that comprise the project, as well as documents, plans, and training/certification programs.

MDOT will use the PRSA to ensure that MTA uses appropriate processes to complete SSC. MDOT will also audit the mitigation of hazards and vulnerabilities, and assess general operational and maintenance readiness. Before revenue service begins, MTA shall submit a Safety and Security Certification Verification Report to MDOT for review and approval. The report shall document the completion of the SSC process. MDOT will forward its approval of this report to FTA prior to the start of revenue operations.

The result of the audit will be a written report with findings and recommendations. MTA may already be aware of and addressing many, if not most, of the findings and unfinished items that MDOT may identify during the audit process. MDOT may issue findings regarding incomplete certifiable items, or may require a workaround prior to the start of revenue service. MDOT may also identify findings regarding other safety or security-related issues that require corrective action, either prior to revenue service, or as a longer-term corrective action. MDOT will identify findings via the following means:

- Ongoing feedback during the on-site audit process, including discussions and meetings with appropriate managers
- A verbal summary of identified findings during a brief close-out briefing at the conclusion of the on-site assessment, with a special focus on any near-term issues that may need to be resolved prior to revenue operations
- An interim report issued to MTA within 2 weeks of the conclusion of the on-site audit.
- MDOT will work with MTA to verify progress in addressing findings and unfinished items, and will issue a final report that documents these actions prior to the start of revenue operations.

For New Starts projects requiring the development of a new SSPP and SEPP, the PRSA process shall also include an SSPP and SEPP Readiness Audit. The audit would take place after the initial submission of the SSPP and SEPP, but prior to revenue operations. In addition to the PRSA components described above, this assessment would focus on the capabilities of MTA to implement its SSPP and SEPP during passenger operations. This assessment may be conducted in conjunction with MDOT review and approval of the initial SSPP and SEPP submissions.

## Appendix A – Checklist for Reviewing the SSPP

Rail Transit Agency (RTA) \_\_\_\_\_

State Oversight Agency Reviewer \_\_\_\_\_ Date \_\_\_\_\_

#	CHECKLIST ITEM	PLAN REQUIREMENTS Does the PLAN contain or provide for the following:	INCLUDED Yes — No	PAGE REF.	COMMENTS
1.	Policy Statement	<ul style="list-style-type: none"> <li>A policy statement is developed for the System Safety Program Plan (SSPP).</li> <li>The policy statement describes the authority that establishes the system safety program plan.</li> <li>The policy statement is signed and endorsed by the rail transit agency's chief executive.</li> </ul>			
2.	Purpose, Goals and Objectives	<ul style="list-style-type: none"> <li>The purpose of the SSPP is defined.</li> <li>Goals are identified to ensure that the SSPP fulfills its purpose.</li> <li>Objectives are identified to monitor and assess the achievement of goals.</li> <li>Stated management responsibilities are identified for the safety program to ensure that the goals and objectives are achieved.</li> </ul>			
3.	Management Structure	<ul style="list-style-type: none"> <li>An overview of the management structure of the rail transit agency is provided including an organization chart.</li> <li>Organizational structure is clearly defined and includes: <ul style="list-style-type: none"> <li>History and scope of service,</li> <li>Physical characteristics, and</li> <li>Operations and Maintenance.</li> </ul> </li> <li>A description of how the safety function is integrated into the rest of the rail transit organization is provided.</li> <li>Clear identification of the lines of authority used by the rail transit agency to manage safety issues is provided.</li> </ul>			

#	CHECKLIST ITEM	PLAN REQUIREMENTS Does the PLAN contain or provide for the following:	INCLUDED Yes — No	PAGE REF.	COMMENTS
4.	Plan Review and Modification	<ul style="list-style-type: none"> <li>An annual assessment of whether the system safety program plan should be updated is specified.</li> <li>The process used to control changes to the system safety program plan is described.</li> <li>Specific departments and persons responsible for initiating, developing, approving, and issuing changes to the SSPP are identified.</li> <li>Required coordination with the oversight agency regarding plan modification, including timeframes for submission, revision, and approval, is addressed.</li> </ul>			
5.	Plan Implementation	<ul style="list-style-type: none"> <li>A description of the specific activities required to implement the system safety program plan is included.</li> <li>Tasks to be performed by the rail transit safety function, by position and management accountability, are identified and described.</li> <li>A description of the methodologies used by the system safety function to achieve their safety responsibilities should be provided.</li> <li>Safety-related tasks to be performed by other rail transit departments, by position and management accountability, are identified and described.</li> <li>A task matrix (or an equivalent narrative description) showing: all identified safety responsibilities, interfaces among all rail transit units responsible for each task, and the key reports or actions required, should be provided.</li> </ul>			
6.	Hazard Management Process	<ul style="list-style-type: none"> <li>The process used by the rail transit agency to implement its hazard management program, including the role of the oversight agency in providing ongoing communication, is described.</li> <li>The hazard management process includes activities for: hazard identification, hazard investigation, evaluation, and analysis, hazard control and elimination, hazard tracking.</li> <li>Requirements for ongoing reporting to the oversight agency relating to hazard management activities and status are specified.</li> </ul>			

#	CHECKLIST ITEM	PLAN REQUIREMENTS Does the PLAN contain or provide for the following:	INCLUDED Yes — No	PAGE REF.	COMMENTS
7.	Safety Certification Process	<ul style="list-style-type: none"> <li>A description of the safety certification process required by the rail transit agency to ensure that safety concerns and hazards are adequately addressed prior to the initiation of passenger operations for New Starts and subsequent major projects to extend, rehabilitate, or modify an existing system, or to replace vehicles and equipment.</li> </ul>			
8.	System Modifications	<ul style="list-style-type: none"> <li>The process used by the rail transit agency to ensure that safety concerns are addressed in modifications to existing systems, vehicles, and equipment, which do not require formal safety certification, but which may have safety impacts, is described.</li> </ul>			
9.	Safety Data Acquisition	<ul style="list-style-type: none"> <li>The process used to collect, maintain, analyze, and distribute safety data is clearly defined.</li> <li>The management process for ensuring that the safety function within the rail transit organization receives the necessary information to support implementation of the system safety program is clarified.</li> </ul>			

#	CHECKLIST ITEM	PLAN REQUIREMENTS Does the PLAN contain or provide for the following:	INCLUDED Yes — No	PAGE REF.	COMMENTS
10	Incident Notification, Investigation, and Reporting	<ul style="list-style-type: none"> <li>• A description is provided regarding the process used by the rail transit agency to perform accident notification, investigation and reporting.</li> <li>• Criteria for determining what accidents/incidents require investigation, and who is responsible to conduct specific investigations are developed.</li> <li>• A description of the procedures for performing investigations, including proper documentation and reporting of findings, conclusions reached, use of hazard resolution process to develop corrective action recommendations, and follow-up to verify corrective action implementation is provided.</li> <li>• Notification thresholds for internal departments/functions are defined.</li> <li>• Criteria are specified for notifying external agencies (NTSB, state oversight agency) of accidents and incidents.</li> <li>• Procedures are established for documenting and reporting on accident investigations.</li> <li>• Process used to develop, implement, and track corrective actions that address investigation findings is specified.</li> <li>• Coordination with the oversight agency is specified.</li> </ul>			

#	CHECKLIST ITEM	PLAN REQUIREMENTS Does the PLAN contain or provide for the following:	INCLUDED Yes — No	PAGE REF.	COMMENTS
11	Emergency Management Program	<ul style="list-style-type: none"> <li>• The agency's emergency planning responsibilities and requirements are identified.</li> <li>• A description of the process used by the rail transit agency to develop an approved, coordinated schedule for emergency management program activities is provided.</li> <li>• Required meetings with external agencies regarding the emergency management program are specified.</li> <li>• The process used to evaluate emergency preparedness, such as annual emergency field exercises, is documented.</li> <li>• After action reports and implementation of findings are required.</li> <li>• The process is explained to be used by the rail transit agency for the revision and distribution of emergency response procedures.</li> <li>• The agency's responsibilities for providing employee training are identified.</li> <li>• The agency's responsibilities for providing familiarization training to local public safety organizations are identified.</li> </ul>			

#	CHECKLIST ITEM	PLAN REQUIREMENTS Does the PLAN contain or provide for the following:	INCLUDED Yes — No	PAGE REF.	COMMENTS
12.	Internal Safety Audit Program	<ul style="list-style-type: none"> <li>• A description of the process used by the rail transit agency to ensure that planned and scheduled internal safety audits are performed to evaluate compliance with the SSPP is included.</li> <li>• Identification of departments and functions subject to audit is performed.</li> <li>• Auditors must be independent from the first line of supervision responsible for the activity being audited.</li> <li>• A triennial audit schedule must be developed, reviewed, maintained and updated to ensure that all 21 SSPP elements are reviewed during the audit cycle.</li> <li>• The process for conducting audits, including the development of checklists, and procedures for conducting audits and issuing of findings is described.</li> <li>• The SSPP must describe the requirement of an annual audit report that summarizes the results of individual audits performed during the previous year and includes the status of required corrective action items. This report must be submitted to the state oversight agency for review and approval.</li> <li>• The process for resolving problems and disagreements, report distribution, and follow-up on corrective action procedures is described.</li> <li>• The ISAP process and reporting must be coordinated with the state oversight agency.</li> <li>• The ISAP process should be comprehensive.</li> </ul>			

#	CHECKLIST ITEM	PLAN REQUIREMENTS Does the PLAN contain or provide for the following:	INCLUDED Yes — No	PAGE REF.	COMMENTS
13.	Rules Compliance	<ul style="list-style-type: none"> <li>Operating and maintenance rules and procedures that affect safety are identified.</li> <li>Operating and maintenance rules and procedures that affect safety are reviewed for their effectiveness and determinations are made regarding their need to be updated.</li> <li>Description of process for developing, maintaining, and ensuring compliance with operating and maintenance rules and procedures.</li> <li>Techniques used to assess the implementation of operating and maintenance rules and procedures by employees, such as performance testing/compliance checks.</li> <li>Techniques used to assess the effectiveness of supervision relating to the implementation of operating and maintenance rules.</li> <li>Process for documenting results and incorporating them into the hazard management program.</li> </ul>			
14.	Facilities and Equipment Inspections	<ul style="list-style-type: none"> <li>Identification of the facilities and equipment that are subject to regular safety related-inspection and testing is provided.</li> <li>A description of how safety-related equipment and facilities are included in a regular inspection and testing program is provided.</li> <li>Use of a written checklist for conducting facility inspections.</li> <li>Descriptions of how identified hazardous conditions are entered into the Hazard Resolution Process.</li> </ul>			

#	CHECKLIST ITEM	PLAN REQUIREMENTS Does the PLAN contain or provide for the following:	INCLUDED Yes — No	PAGE REF.	COMMENTS
15.	Maintenance Audit and Inspection Program	<ul style="list-style-type: none"> <li>• A list of systems and facilities subject to a maintenance program, along with established maintenance cycle and required documentation of maintenance performed for each item, is provided.</li> <li>• A description of the process for tracking and resolving problems identified during inspections is provided.</li> <li>• Use of a written checklist for conducting maintenance audits is required.</li> </ul>			
16.	Training and Certification Program	<ul style="list-style-type: none"> <li>• A description of the training and certification program for employees and contractors is provided.</li> <li>• Categories of safety-related work requiring training and certification are identified.</li> <li>• Description of the training and certification program for employees and contractors in safety-related positions is provided.</li> <li>• Description of the training and certification program for contractors is provided.</li> <li>• The process used to maintain and access employee and contractor training records is described.</li> <li>• The process used to assess compliance with training and certification requirements is described.</li> </ul>			
17.	Configuration Management Process	<ul style="list-style-type: none"> <li>• A description of the configuration management control process is provided and appropriate references are made to other rail transit agency documents governing this process.</li> <li>• Process for making changes is described.</li> <li>• Authority to make configuration changes is described and assurances are provided for formal notification of all involved departments.</li> </ul>			

#	CHECKLIST ITEM	PLAN REQUIREMENTS Does the PLAN contain or provide for the following:	INCLUDED Yes — No	PAGE REF.	COMMENTS
18.	Compliance with Local, State and Federal Safety Requirements	<ul style="list-style-type: none"> <li>• A description of the safety program for employees and contractors that incorporates the applicable local, state, and federal requirements is provided.</li> <li>• Safety requirements that employees and contractors must follow when working on, or in close proximity to, rail transit agency controlled property are identified.</li> <li>• Processes for ensuring the employees and contractors know and follow the requirements are described.</li> </ul>			
19.	Hazardous Materials Program	<ul style="list-style-type: none"> <li>• A description of the hazardous materials program, including the process used to ensure knowledge of and compliance with program requirements is provided.</li> </ul>			
20.	Drug and Alcohol Program	<ul style="list-style-type: none"> <li>• A description of the drug and alcohol program and the process used to ensure knowledge of and compliance with program requirements is provided.</li> </ul>			
21.	Procurement	<ul style="list-style-type: none"> <li>• A description of the measures, controls, and assurances in place to ensure that safety principles, requirements, and representatives are included in the rail transit agency procurement process.</li> </ul>			

## Appendix B – Checklist for Reviewing the SEPP

Rail Transit Agency (RTA) \_\_\_\_\_

State Oversight Agency Reviewer \_\_\_\_\_ Date \_\_\_\_\_

#	CHECKLIST ITEM	PLAN REQUIREMENTS Does the PLAN contain or provide for the following:	INCLUDED Yes — No	PAGE REF.	COMMENTS
1.	Policy Statement	<ul style="list-style-type: none"> <li>A policy statement should be developed for the System Security and Emergency Preparedness Plan.</li> <li>The policy statement should describe the authority that establishes the SEPP, including statutory requirements and the rail transit agency's relationship with the oversight agency.</li> <li>The policy statement is signed and endorsed by the rail transit agency's chief executive.</li> </ul>			
1.1	Purpose	<ul style="list-style-type: none"> <li>The SEPP should identify the purpose of the security program endorsed by the agency's chief executive.</li> <li>The SEPP should introduce the concept of "system security."</li> <li>The SEPP introduce the concept of "emergency preparedness."</li> </ul>			
1.2	Goals and Objectives	<ul style="list-style-type: none"> <li>The SEPP should identify the goals of the SEPP program endorsed by the agency's chief executive.</li> <li>The SEPP should identify the objectives of the SEPP program endorsed by the agency's chief executive.</li> </ul>			
1.3.	Scope	<ul style="list-style-type: none"> <li>Describe the scope of the SEPP and Program.</li> </ul>			
1.4	Security and Law Enforcement	<ul style="list-style-type: none"> <li>Describe the security and law enforcement functions that manage and support implementation of the SEPP.</li> </ul>			
1.6	Government Involvement	<ul style="list-style-type: none"> <li>Describe how the SEPP interfaces with local, state and federal authorities to ensure security and emergency preparedness for the system.</li> </ul>			

#	CHECKLIST ITEM	PLAN REQUIREMENTS Does the PLAN contain or provide for the following:	INCLUDED Yes — No	PAGE REF.	COMMENTS
1.7	Security Acronyms and Definitions	<ul style="list-style-type: none"> <li>Provide a listing of acronyms and definitions used in the SEPP.</li> </ul>			
2.1	Background and History	<ul style="list-style-type: none"> <li>A description of the agency including general overview, a brief history and scope of rail transit services provided.</li> </ul>			
2.2	Organizational Structure	<ul style="list-style-type: none"> <li>Organizational charts showing the lines of authority and responsibility as they relate to security and emergency preparedness.</li> </ul>			
2.3	Human Resources	<ul style="list-style-type: none"> <li>Provide a categorization and break-down of all employees and contractors who work for/on the rail transit agency.</li> </ul>			
2.4	Passengers	<ul style="list-style-type: none"> <li>Provide a description of the rail transit agency's ridership.</li> </ul>			
2.5	Services and Operations	<ul style="list-style-type: none"> <li>Describe the rail transit agency's operations and services.</li> </ul>			
2.6	Operating Environment	<ul style="list-style-type: none"> <li>Describe the rail transit agency's operating environment.</li> </ul>			
2.7	Integration with Other Plans	<ul style="list-style-type: none"> <li>Describe how the SEPP integrates with other plans and programs maintained by the rail transit agency.</li> </ul>			
2.8	Current Security Conditions	<ul style="list-style-type: none"> <li>Description of the current security conditions at the rail transit agency and the types of security incidents experienced by the transit system and their frequency of occurrence.</li> </ul>			
2.9	Capabilities and Practices	<ul style="list-style-type: none"> <li>Summary description of methods and procedures, devices, and systems utilized to prevent or minimize security breaches, including passenger education, campaigns, delay, detection, and assessment devices, and others that may be applicable.</li> </ul>			
3.1	Responsibility for Mission Statement	<ul style="list-style-type: none"> <li>Identification of the person(s) responsible for establishing transit system security and emergency preparedness policy and for developing and approving the SEPP.</li> </ul>			

#	CHECKLIST ITEM	PLAN REQUIREMENTS Does the PLAN contain or provide for the following:	INCLUDED Yes — No	PAGE REF.	COMMENTS
3.2	Management of the SEPP Program	<ul style="list-style-type: none"> <li>Identification of the person(s) with overall responsibility for transit security and emergency preparedness, including day-to-day operations, SEPP-related internal communications, liaison with external organizations, and identifying and resolving SEPP-related concerns.</li> </ul>			
3.3	Division of Security Responsibility	<ul style="list-style-type: none"> <li>Listing of SEPP-related responsibilities of the personnel who work within the transit agency security/police function.</li> <li>Listing of SEPP-related responsibilities of other departments/functions, including their relationship to the security/police function.</li> <li>Listing of security-related responsibilities for other (non-security/police) rail transit agency employees, including their relationship to the employee's other duties.</li> <li>A SEPP Program Roles and Responsibilities Matrix should be developed showing interfaces with other transit system departments/functions and the key reports or actions required.</li> <li>The responsibilities of external agencies for supporting SEPP development and implementation should be identified.</li> <li>The committees developed by the rail transit agency to address security issues should be identified.</li> </ul>			
4.1	Planning	<ul style="list-style-type: none"> <li>Identification of SEPP activities and programs in place at the rail transit agency to support planning for system security and emergency preparedness.</li> </ul>			
4.2	Organization	<ul style="list-style-type: none"> <li>Identification of the organization of SEPP-related activities and programs and the ability to coordinate with external response agencies.</li> </ul>			
4.3	Equipment	<ul style="list-style-type: none"> <li>Description of the equipment used to support implementation of the SEPP program.</li> </ul>			
4.4	Training and Procedures	<ul style="list-style-type: none"> <li>Description of SEPP-related training and procedures available to ensure employee proficiency.</li> </ul>			

#	CHECKLIST ITEM	PLAN REQUIREMENTS Does the PLAN contain or provide for the following:	INCLUDED Yes — No	PAGE REF.	COMMENTS
4.5	Exercises and Evaluation	<ul style="list-style-type: none"> <li>Description of SEPP-related activities to ensure the conduct of emergency exercises and evaluation.</li> </ul>			
5.1	Threat and Vulnerability Identification	<ul style="list-style-type: none"> <li>Description of the rail transit agency's activities to identify security and terrorism-related threats and vulnerabilities.</li> </ul>			
5.2	Threat and Vulnerability Assessment	<ul style="list-style-type: none"> <li>Description of the rail transit agency's activities to assess the likely impacts of identified threats and vulnerabilities on the system and to identify particular vulnerabilities which require resolution.</li> </ul>			
5.3	Threat and Vulnerability Resolution	<ul style="list-style-type: none"> <li>Description of how response strategies (both short- or long-term strategies) are developed for prioritized vulnerabilities, including the decision process used to determine whether to eliminate, mitigate, or accept security problems.</li> </ul>			
6.1	Required Tasks for Goals and Objectives	<ul style="list-style-type: none"> <li>Identification of tasks to be performed to implement the goals and supporting objectives required to implement the SEPP.</li> </ul>			
6.2	Task Schedule	<ul style="list-style-type: none"> <li>General schedule with specific milestones for implementation of the security program, threat and vulnerability analyses, staff security training, and regular program audits during the implementation process.</li> </ul>			
6.3	Evaluation	<ul style="list-style-type: none"> <li>Description of the types of internal management audits to be conducted, the frequencies of the audits, and the person(s) responsible.</li> </ul>			
7.1	Initiation of SEPP Revisions	<ul style="list-style-type: none"> <li>Description of process used to initiate revisions to the security plan, gather input for the revisions, procedures for updating the security plan, and identification of responsible person(s).</li> </ul>			
7.2	Audit Process	<ul style="list-style-type: none"> <li>Description of the process used to review and revise the security plan as necessary, including frequency of reviews, and responsible person(s).</li> </ul>			

#	CHECKLIST ITEM	PLAN REQUIREMENTS Does the PLAN contain or provide for the following:	INCLUDED Yes — No	PAGE REF.	COMMENTS
7.3	Implement Modifications	<ul style="list-style-type: none"> <li>Description of process used to communicate and disseminate new and revised procedures and other elements of the security plan to appropriate transit agency staff.</li> </ul>			

## **Appendix C – Maryland Rail Safety Oversight Program Accident/Incident Investigation Procedures (AIIP)**

In the event that the Maryland Rail Safety Oversight Program (RSOP) conducts an independent investigation of an accident or incident on the Light Rail or Metro, at a minimum, the following shall occur:

- THE RSOP will assign a team of qualified personnel to investigate the accident (off and on-site). The team will include individuals with technical expertise in the type of accident being investigated. For example, a vehicles expert would be included in a team conducting the accident investigation for an accident involving a rail vehicle mechanical failure. Technical areas of specialization may include:
  - System Safety
  - Safety Training
  - Transportation Management and Operations
  - Substance Abuse Programs
  - Vehicles and Vehicle Maintenance
  - Worker Health & Safety, Facility Safety, & Hazardous Materials
  - Emergency Operations
  - Track, Structures, Signals & Communications
  - Transit System Security
- The RSOP on-site team will wait until MTA and/or other emergency response personnel have secured the accident/incident scene area before commencing its on-site accident investigation. The RSOP reserves the right to request that MTA hold the accident scene to the maximum extent feasible until the arrival of the RSOP representatives when a RSOP accident investigation is planned or requested.
- The RSOP team will assess physical evidence of the accident scene including: damage and debris analysis; skid mark analysis; and the use of measurements, diagrams and photographs. They also will document the environmental and physical factors of the accident scene.
- As part of the accident/incident investigation, the RSOP will also assess compliance with operating rules and procedures; conduct follow-up interviews (if required); analyze employee records and the results of post-accident drug and alcohol tests; and conduct vehicle and equipment inspections.
- All information gathered from the accident/incident investigation will be documented and included in the RSOP accident investigation report.
- Within 30 work days of completion of the on-site and off-site accident investigation requirements, the RSOP investigation team will prepare a draft accident investigation report.
- The draft accident investigation report will be provided to MTA for its review. Comments will be due to the RSOP 10 work days after initial MTA receipt of the draft report. If necessary, a meeting to discuss the draft report will also be held between the RSOP and MTA.

- If necessary and based upon the comments received from the transit agency, the draft report will be revised.
- A final accident investigation report will be issued by the RSOP within 30 work days of the end of the comment period.

MTA will be required to review the final RSOP accident investigation report, and within 10 days after receiving it, either (1) provide concurrence to implement the RSOP-proposed CAP or (2) submit an alternate CAP to the RSOP for review and approval.

The following section details the procedures to be used by the RSOP in the event that it elects to conduct an independent investigation, or to lead an investigation in cooperation with MTA.

## **10.1 RSOP Investigation Procedure**

### **10.1.1 Initiation of investigation**

Using the investigation threshold requirements described previously in this standard, the RSOP determines if an investigation is required, and whether it will conduct an independent investigation.

If an investigation is required, the RSOP will designate an investigator in charge to conduct the investigation in accordance with the procedures outlined in this standard.

### **10.1.2 Initial RSOP response**

#### **10.1.2.1 Incident command**

Upon notification of an accident/incident that meets the necessary threshold, RSOP personnel will communicate with MTA's on-site incident command (IC). MTA's on-site IC will coordinate with the incident command established by outside emergency responders and become a resource to the incident commander, and will inform the RSOP as the situation progresses.

#### **10.1.2.2 Investigator in charge (for RSOP investigation)**

##### **10.1.2.2.1 Authority**

The RSOP IIC will initiate, coordinate and conduct an independent on-site investigation of accidents/incidents that meet RSOPS investigation thresholds. The RSOP may support the IIC with an accident investigation team.

##### **10.1.2.2.2 Response**

Upon notification of an accident/incident meeting RSOPS investigation thresholds, the IIC will respond to the scene when practical. He or she will also be the point of contact/communication with MTA.

##### **10.1.2.2.3 Coordination with incident command**

The IIC will coordinate with MTA's on-site IC.

#### **10.1.2.2.4 Securing the scene**

When possible and if not in conflict with any authority having jurisdiction (AHJ), the IIC will ensure the scene is secured in order to preserve site conditions and evidence to ensure accurate data development.

### **10.1.3 Coordination and provision of technical assistance/expertise**

#### **10.1.3.1 IIC (for RSOP investigation)**

The RSOP IIC will coordinate with the IC and other RSOP-contracted personnel to obtain, as needed, technical assistance/expertise in conducting required post-accident/incident assessments of vehicles, infrastructures, physical plant and/or equipment.

#### **10.1.3.2 Incident command (IC)**

If the RSOP IIC requests technical assistance/expertise, he or she will ensure that the IC makes the required technical assets available and deploys them to the scene in a timely manner. The MDOT IIC should ensure that tests are completed in a timely manner.

#### **10.1.3.3 Investigation committee**

Consideration will be given to the formation of a multifunctional investigation committee consisting of operations, mechanical, engineering and safety personnel under the leadership of the RSOP IIC.

#### **10.1.3.4 Technical assistance content**

Examples of technical assistance/expertise include, as applicable, inspection, testing and operational assessment of the following:

- Signals
- Track
- Power
- Communications
- Vehicle and equipment

### **10.1.4 Accident/incident on-site data development**

The RSOP's IIC has three objectives for data development when initially responding to an accident scene:

- To preserve short-term and long-term physical evidence.
- To develop a preliminary sequence of events to determine what happened.
- To identify employees, passengers and other eyewitnesses to obtain preliminary statements and contact information.

Once an event occurs, short-term information becomes quickly perishable as an accident scene is recovered (e.g., equipment or obstructions are moved or rearranged, equipment controls are

repositioned, witnesses “disappear,” etc.) The primary task of on-site data collection is to prioritize the retrieval of such perishable information.

#### **10.1.4.1 Initially photographing the scene**

Upon arrival on the accident scene, the RSOP IIC will arrange to have the scene photographed as soon as possible from a panoramic view, preferably before the accident scene is disturbed. This panorama should include camera photographic shots of the involved vehicle(s) in full view; nearby infrastructure features; and any evident significant obstructions, objects or conditions. Accident scene photographs should be taken using a “four-point compass” method. The entire scene should be photographed from multiple vantage points. The photographer should attempt to provide sufficient depth of field to show relative positioning of objects and subjects for later comparison with diagrams.

#### **10.1.5 Documenting general observational information**

##### **10.1.5.1 General information upon arrival**

RSOP personnel will document the following checklist items:

- Location
- Day and date of occurrence
- Time of occurrence
- Time of arrival of RSOP IIC, supervisory staff and responders
- Visibility (dawn, day, dusk, dark)
- Weather (clear, cloudy, rainy, foggy, snowing, sleeting)
- Approximate temperature

##### **10.1.5.2 Eyewitness information**

MDOT personnel will obtain eyewitness information as quickly as possible. Information should include the following:

- Name, address telephone number
- Witness category (employee, passenger, bystander)
- Status of witness (observer or principal involved in accident)
- Brief description or account of what was or was not observed

#### **10.1.6 Documenting vehicle and infrastructure factors and conditions**

##### **10.1.6.1 Vehicle condition at scene**

RSOP personnel will document the damage and condition of the vehicle(s), including monetary damage estimate. Checklist items will include the following, as applicable:

- Car-body condition (visible damage)
- Positions of all operator controls (controller and brake handles, headlight and other switches, air gauge readings, etc.)
- Wheels/axles/trucks/sanders
- Brake systems (friction, electric [dynamic], track)

- Door positions or other entry/exit location conditions
- Headlights, marker lights, indicator lights status

#### **10.1.6.2 Vehicle dynamics**

RSOP personnel will document evidence relative to vehicle travel/speed to include, as a minimum, the following:

- Ensure event log data (where in service) is secured.
- Identify wheel marks on track.
- Identify evidence of sanding.
- Identify evidence indicating the area of contact/collision.
- Determine line-of-sight distances.
- Ensure arrangement to secure recorded communication data.

#### **10.1.6.3 Infrastructure and environmental conditions at scene**

RSOP personnel will document the damage and condition of the infrastructure and environmental conditions, including a monetary damage estimate. Checklist items will include the following:

- Damage (observable) to track, signals, bridges, structures, buildings other infrastructure equipment or machinery
- Damage (observable) to crossing protection apparatus, if relevant
- Roadway approaches and visible pedestrian approaches (unauthorized or otherwise), if relevant
- Evidence (observable) of recent environmental alteration (washout, landslide, etc.)
- Evidence (observable) of recent miscreant alteration (vandalism)
- Point of derailment, collision or other incident

### **10.1.7 Diagramming and measuring the scene**

#### **10.1.7.1 Diagramming**

RSOP personnel will sketch the scene, as appropriate, regarding the relative location of track(s), vehicle(s), signals, equipment, apparatus, buildings, bridges and other structures. Sketched will include noteworthy landmark features, such as roadways, waterways, pathways, flora, etc. Diagram alignment should be relative to geographic north.

#### **10.1.7.2 Measuring**

RSOP personnel will indelibly mark points of reference in the field (e.g., paint or chalk markings), and document correlation of points of reference with resting positions of objects or subjects, using feet as a standard unit of measure.

#### **10.1.7.3 Photographing specific circumstances**

RSOP personnel will arrange to have specific objects or subjects photographed as soon as possible from both normal periphery and close-up views, preferably before the accident scene is disturbed. The photographer should attempt to ensure appropriate depth of field to sufficiently record subject material. These photographs will attempt to include, as a minimum, the following:

- Each vehicle involved, exterior four sides, including number

- Each vehicle involved, interior compartment
- Each vehicle involved, operating control compartment
- Resting position of wheels if off track, including evidence of sanding
- All visible points of vehicle damage
- Evidence of wheel marks on rail
- All visible points of infrastructure damage
- Any visibly evident contributing obstructions, objects, or conditions
- Position of casualties, if stationary
- Any other subject that appears out of the ordinary

#### **10.1.8 Casualty factors**

RSOP personnel will document the current status of all known casualties, including the following:

- Injuries – total number, personal information (if possible)
- Fatalities– total number, personal information (if possible)
- Identification of responder units that treated or transported casualties
- Identification of hospitals where casualties were transported

#### **10.1.9 Toxicological factors**

MTA is mandated by 49 CFR Part 655, “Prevention of Alcohol Misuse and Prohibited Drug Use in Transit Operations,” to conduct toxicological testing based upon regulatory requirements, collective bargaining agreements or standard policy. RSOP will ensure MTA field supervisory personnel making determinations meet qualification standards.

##### **10.1.9.1 Identify if testing is required**

RSOP will determine if event factors meet criteria for drug and alcohol testing. Determine which employees, if any, are subject to testing based upon the criteria.

##### **10.1.9.2 Authority and type of test**

RSOP personnel will identify the authorization to conduct the test and the type of test that is required. Authorization and types include the following:

- FTA (for cause, post-accident)
- FRA (for cause, post-accident)
- State safety oversight agency
- MTA (for cause, post-accident)
- Local or regional police

#### **10.1.10 Accident/incident off-site data development**

Once the accident scene has been recovered, the RSOP IIC has three objectives for data development:

- To collect remaining applicable non-perishable data.
- To conduct interim research and analysis of all collected data to date to reconstruct the event.
- To determine probable cause and contributing factors.

In the aftermath of an accident, long-term information that is nonperishable must be collected (e.g., operational speeds and conditions, maintenance and inspection records, damage estimates, etc.). The primary task of off-site data collection is to coordinate documentation to support evaluation of system, vehicle, and employee performance.

#### **10.1.11 Coordination and provision of technical assistance/expertise**

RSOP personnel will coordinate needed post-accident research and analysis with all support departments and independent outside agencies, and arrange for providing specialized technical support within the respective discipline(s) and/or departments.

#### **10.1.12 Vehicle and component performance**

##### **10.1.12.1 Inspections/tests**

RSOP personnel will conduct and/or document post-accident inspections/tests on vehicles as needed to determine if pre-existing conditions contributed to the accident. Applicable components to be tested should include, as a minimum, the following:

- Operator controls
- Wheels/axles/trucks/sanders
- Braking systems friction, electric (dynamic), track
- On-board signal/speed control systems
- Communication system
- Lights
- Whistle/horn/gong

##### **10.1.12.2 Engineering specifications**

RSOP personnel will obtain all applicable engineering specifications and drawings, as applicable.

##### **10.1.12.3 Maintenance history**

RSOP personnel will review prior maintenance history of vehicle or components to determine if any significant conditions or performance levels existed prior to the accident, identify relevant protocols and recommended frequency. RSOP personnel will also identify activities performed or omitted, the dates and by whom they were performed.

##### **10.1.12.4 Data comparison**

RSOP personnel will compare systems performance data (inspections/tests, maintenance history) vs. prescribed engineering limits/specifications to determine if there were any contributing factors to the accident.

##### **10.1.12.5 Damage costs**

RSOP personnel will verify vehicle damage and repair costs.

### **10.1.13 Vehicle dynamics**

#### **10.1.13.1 Event log data**

RSOP personnel will review event log data to determine actual vehicle performance prior to and at the time of the event.

#### **10.1.13.2 Communication data**

RSOP personnel will review recorded radio or other communication data to determine if the flow of information is of significance.

### **10.1.14 Infrastructure system performance**

#### **10.1.14.1 Inspections/tests**

RSOP personnel will conduct and/or document timely post-accident inspections/tests on infrastructure as needed to determine if pre-existing conditions contributed to the accident. Infrastructure components to be tested should include, as a minimum or as applicable, the following:

- Track structure
- Traction power system
- Signal systems
- Routing systems
- Buildings and other structures
- Bridges
- Grade crossing protection apparatus
- Other equipment or machinery

#### **10.1.14.2 Event log data**

RSOP will review recovered data from any off-vehicle event recorders, such as signal system event recorders or other software driven records systems.

#### **10.1.14.3 Engineering specifications**

RSOP personnel will obtain all applicable engineering specifications and drawings.

#### **10.1.14.4 Maintenance history**

RSOP personnel will review prior maintenance history of systems to determine if any significant conditions or performance levels existed prior to the accident, and identify relevant protocols and recommended frequency. Identify activities performed or omitted, and the dates and by whom they were performed.

#### **10.1.14.5 Data comparison**

RSOP personnel will compare systems performance data (inspections/tests, maintenance history) vs. prescribed engineering limits/specifications to determine if there were any contributing factors to the accident.

#### **10.1.14.6 Damage costs**

RSOP personnel will verify infrastructure damage and repair costs.

### **10.1.15 Operational conditions and factors**

#### **10.1.15.1 RTS operating instructions**

RSOP personnel will identify all applicable transit operating instructions at the location of accident. These include, but are not limited to, the following:

- Maximum authorized speed and speed restrictions
- Operating signs and locations
- Wayside signal locations and aspects capable of being displayed
- Bulletins or other special operating orders in effect at time of accident
- Automatic signal systems in effect (train control, cab signals, interlockings, automatic block, etc.)
- Any special operating conditions

#### **10.1.15.2 Other operating instructions**

RSOP personnel will obtain and review applicable federal and state rules/regulations to determine compliance and effect on accident dynamics. As applicable, these include the following:

- Motor Vehicle Code
- Operating standards and practices
- Equipment standards
- Qualification/certification level requirements
- Inspection/maintenance standards
- Safety standards and practices

### **10.1.16 Interviews and outside reports**

#### **10.1.16.1 Primary interviews**

RSOP personnel will conduct detailed face-to-face interviews as needed to determine the sequence of events leading up to and at the time of the accident. If possible, tape record the interview and obtain the interviewee's signature. Interviews should include, as a minimum or as applicable:

- Crew members
- Other employees directly or indirectly involved in the sequence of events
- Non-employee accident principals
- Passengers
- Bystander witnesses

#### **10.1.16.2 Secondary interviews**

RSOP personnel will obtain any interview data conducted by other independent sources.

#### **10.1.16.3 Supervisory reports**

RSOP personnel will obtain applicable supervisory reports of investigation.

#### **10.1.16.4 Outside agency reports**

RSOP personnel will obtain applicable reports of investigation prepared by outside agencies and police.

### **10.1.17 Documenting human factors**

#### **10.1.17.1 Employee records**

RSOP will review employee records for performance history or incidents relating to accident dynamics. These records should include, but are not limited to, the following:

- Operating and safety practices compliance
- Qualification/certification levels and experience
- Training and continuing education history
- Accident/Incident history
- Toxicological and medical history
- Attendance/discipline history

#### **10.1.17.2 Fatigue factors**

RSOP will review and document employee hours of service before accident. This should include the following:

- Time employee reported for duty
- Elapsed time from on-duty time until time of accident
- Break periods before accident
- Available off-duty hours before reporting for assignment
- Number of consecutive days worked prior to day of accident
- Nature of off-duty activity prior to accident

#### **10.1.17.3 Fitness for duty**

RSOP will review and document the employee's fitness for duty. This should include the following:

- Visual acuity
- Pre-existing medical conditions
- Consumption of prescription/non-prescription medication

#### **10.1.17.4 Employee performance**

RSOP personnel will consider all aspects of employee performance comparative to operating conditions, vehicle and infrastructure conditions, and human physical limitations. Compare research data to event log and communication data to determine performance level.

#### **10.1.18 Follow-up casualty factors**

##### **10.1.18.1 Contacting hospitals and verifying casualties**

RSOP personnel will contact hospitals to verify casualties and obtain the following:

- Number
- Identities
- Severity (injuries vs. fatalities); include medical examiner reports

##### **10.1.18.2 Trespasser events**

RSOP personnel will conduct additional research for trespasser events and review the following:

- Police reports related to indications of suicide or foul play
- Medical Examiner toxicological reports

##### **10.1.18.3 Potential injury dynamics/survival factors**

RSOP personnel will document vehicle, infrastructure or operating conditions that could have contributed to or increased severity of casualties.

#### **10.1.19 Follow-up toxicological factors**

##### **10.1.19.1 Testing results**

RSOP personnel will obtain results of post-accident toxicological testing.

##### **10.1.19.2 Testing determination**

RSOP personnel will obtain determination of toxicological significance, if available.

#### **10.1.20 Reconstruction**

As considered relevant, RSOP personnel will reconstruct the accident dynamics and sequence of events based upon all data developed from on-site investigation and off-site research. RSOP personnel will establish facts that were contributory to the accident. Fact-finding should include, as a minimum, the following categories:

- Actual vehicle performance
- Actual infrastructure performance
- Actual employee performance
- Mathematical calculations
- Scale drawings/diagrams
- Photographic evidence

### **10.1.21 Analysis**

When all readily obtainable information is assembled, the RSOP IIC will ensure that all existing evidence is evaluated and make a general determination as to the contributing factors and probable cause of the accident. As applicable, the following information should be included:

- RSOP IIC's primary report
- All other supervisor's individual reports
- Interview reports
- Technical reports (vehicle, infrastructure, other)
- Outside agency reports
- Data contained on records, if applicable
- Hand-written statements
- Event log data
- Radio/communication tapes and/or transcripts
- Maps, drawings, or diagrams
- Photographs or videos

The RSOP IIC will keep in mind that the investigation might not have reached the final stage. The RSOP IIC understands that future evidence may surface that could change the determination of probable cause.

### **10.1.22 Preparing reports and recommendations**

#### **10.1.22.1 Investigator in charge**

The RSOP IIC will prepare a summary report detailing the data and analysis to support a determination of cause and recommended corrective action, where needed.

#### **10.1.22.2 Draft report**

A draft report will be completed in a time period to be determined by the RSOP.

#### **10.1.22.3 Accident/incident report**

As a minimum, the RSOP accident/incident report will include the following sections:

- Executive Summary
- Sequence of events
- Prior to the accident/incident
- The accident/incident
- Subsequent to the accident/incident
- Findings/analysis
- Conclusions
- Probable cause
- Contributory causes
- Recommendations

#### **10.1.22.4 Evidence retention**

RSOP will establish a protocol to retain, secure and store physical evidence and documentation developed pursuant to investigations for future criminal, tort or AHJ action. The protocol should attempt to include, as a minimum, the following:

- Chain of custody procedure
- Validation of photographs/videotapes and control center tapes
- Physical evidence retention procedure
- Procedure for destructive/nondestructive testing

#### **10.1.23 Follow-up**

##### **10.1.23.1 Implementing recommendations**

RSOP will coordinate with affected departments to draft CAPS for implementing recommendations developed after an accident/incident investigation.

##### **10.1.23.2 CAP summary**

RSOP will coordinate with MTA in preparing a CAP Summary for all recommendations developed after the accident/incident investigation.

##### **10.1.23.3 CAP information**

RSOP will ensure the CAP includes the following information:

- The recommendation and plan for correction.
  - Activity to meet objectives of the plan.
  - Responsible department/individual for plan implementation and task activity.
  - Scheduled completion dates.
  - Estimated cost.
  - Follow-up
- Ensure that recommendation is implemented.
  - Ensure that recommendation does not result in other safety issues.

##### **10.1.23.4 Periodic reporting**

RSOP will prepare an internal status report of corrective action plan activity and completion status. RSOP will have a follow-up review to check that the corrective actions have been implemented.

## Appendix D –MDOT Annual Approval of MTA Internal Safety and Security Audit Report Checklist

SSO APPROVAL CHECKLIST ELEMENTS		
Safety	Security	Internal Safety and Security Audit Element
<input type="checkbox"/>	<input type="checkbox"/>	1. Prior to January 31st, MTA submitted its internal safety and security report accompanied by a formal letter of certification signed by the MTA Administrator indicating that the MTA is in compliance with its SSPP and SEPP.
<input type="checkbox"/>	<input type="checkbox"/>	2. Indicate that the required elements scheduled for audit during the past year were audited.
<input type="checkbox"/>	<input type="checkbox"/>	3. Verify that MTA has submitted an updated schedule for the upcoming internal safety and security audits and that MTA is on schedule to audit the 21-safety and 7-security elements within a 3-year period.
<input type="checkbox"/>	<input type="checkbox"/>	4. Verify that MDOT was provided 30-days notification and relevant checklists and/or procedures were submitted prior to the conduct of any internal safety and security audits.
<input type="checkbox"/>	<input type="checkbox"/>	5. Verify that the person(s) conducting the audit were independent from the department being audited.
<input type="checkbox"/>	<input type="checkbox"/>	6. The audit finding evaluated the adequacy and effectiveness of the SSPP and SEPP.
<input type="checkbox"/>	<input type="checkbox"/>	7. The completed audit checklists show the activity audited, the method of verification, audit findings, and recommendations with appropriate corrective action(s).
<input type="checkbox"/>	<input type="checkbox"/>	8. CAPs contain the required elements, including action to be taken by MTA, implementation schedule and the individual or department responsible for the implementation.

Annual Report Year: [Click here to enter text.](#)

Checklist Completion Date: [Click here to enter text.](#)

Completed By: [Click here to enter text.](#)